COMBAT RATION NETWORK

FOR

TECHNOLOGY IMPLEMENTATION

Retort Upgrading for Surge

Final Technical Report STP#2008

Results and Accomplishments (May 2002 – December 2008)

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Sponsored by:
DEFENSE LOGISTICS AGENCY
8725 John J. Kingman Rd.
Fort Belvoir, VA 22060-6221

Contractor:
Rutgers, The State University of New Jersey
School of Environmental and Biological Science
THE CENTER FOR ADVANCED FOOD TECHNOLOGY
120 New England Avenue
Piscataway NJ 08854

Principal Investigator:
Henderikus B Bruins

TEL: 732-445-6130
FAX: 732-445-6145

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14. ABSTRACT

Four GFE Stock 1100 retort control systems were upgraded and validated for deployed at a ration producer. Various control systems were compared and evaluated. An important decision criterion was commercial off the shelf hardware and software. The control systems application needed to comply with FDA's 21 CFR Part 11 "Rule for Electronic Records and Electronic Signatures", and be able to support both a stand alone environment and a client-server environment, where multiple retort control systems can be managed from a single location. The control system that was selected was marketed by Stock America Inc, the vendor of the retort equipment. Their control system complied with all of our criteria.

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Abstract

Four GFE Stock 1100 retort control systems were upgraded and validated for deployed to a ration producer. Various control systems were compared and evaluated. An important decision criterion was commercial off the shelf hardware and software. The control systems application needed to comply with FDA's 21 CFR Part 11 "Rule for Electronic Records and Electronic Signatures", and be able to support both a stand alone environment and a client-server environment, where multiple retort control systems can be managed from a single location. We selected the control system that was marketed by Stock America, the vendor of the retort equipment. Their control system complied with all of our criteria.

At the end of the project, all four upgraded retorts were deployed and are currently running in a client server configuration.

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1 Results and Accomplishments

1.1 Introduction and Background

Under a DLA Mantech project for combat rations (CORANET), Rutgers Food Manufacturing Technology Facility (FMTF) has assembled, upgraded, and validated eight Stock Rotomat Model 1100 retorts and three Stock Rotomat Model 1300 retorts. Four more Stock 1100 retorts were shipped to Rutgers FMT Facility for inspection on August 15, 2001. One retort was assembled and installed in the retort room, while the other three retorts were assembled and stored in the warehouse. Rutgers inspected all four retorts and determined their deficiencies. To upgrade these retorts to a state of readiness, Rutgers identified all required improvements that needed to be made.

It was determined that the LOGTEC control systems used in these last four retorts can not longer be supported due to lack of available electronic components. Upgrading the control system, in order to support these retorts during production, was deemed an essential requirement to assure the long term operational status of the retorts.

In support of DSCP's Enduring Justice combat ration supply requirements, two of these retorts were shipped out for immediate deployment on September 24, 2001 to SOPAKCO Texas. The two other retorts remained at the FMT facility and this project would upgrade these retorts and make them operational.

After the upgrade of the first two retort would be completed, an exchange would take place and the two remaining retorts with the out dated control system would be sent back to the FMT facility for their upgrade and validation.

DSCP intends to make all retort equipment available to ration producers as Government Furnished Equipment (GFE) for limited peacetime use, but mainly to be available during surge.

1.2 Objectives

- Manage and maintain Stock 1100 retorts that are located at the CORANET Demonstration Facility in Piscataway, NJ, and others that may be received. Maintenance will be in accordance with the Maintenance and Readiness Plan developed during STP#1011.
- Upgrade four Stock 1100 retorts from LogTec control systems to ICON 2000 version 4 control systems and validate their operational status.

1.3 Results and Conclusions

The final four GFE Stock 1100 retorts were upgraded and validated for deployed to a ration producer. We compared a various control systems upgrades. A facilitate easy up keep, it was decided to install commercial off the shelf hardware and software and to require that the software application could run in both a stand alone environment and in a client-server environment. The control system selected from Stock America Inc. complied with these requirements and complied with FDA's 21 CFR Part 11 "Rule for Electronic Records and Electronic Signatures". All four retorts were deployed and are currently running in a client server configuration.

One GFE retort, with an old style control system (ICON 2000 version2), remains at the CORANET Demo facility in support of the CORANET activities. This retort is being maintained in a state of readiness and can be deployed on a moment notice.

2 Program Management

The project was awarded on May 7, 2002 under SPO103-02-D-0024, Delivery Order 0004 with a partial obligation of $32,687.00 of the total requested amount of $127,687.00. The initial performance period for this delivery order was set at 12 month (May 6, 2003). The initial contract award was to upgrade the two Stock Retorts with LogTec controllers located at the FMT facility.

The following modifications were issued:

July 30, 2002	0004/02	Increased funding, increasing total obligation to 53,088.85
August 1, 2002	0004/03	Increased funding, increasing total obligation to 139,659.85
August 20, 2002	0004/04	Correction the total obligation to 139,298.85
May 6, 2003	0004/05	No cost extension through to December 31, 2003
May 21, 2003	0004/06	Increased funding, increasing total obligation to $146,720.85 to support additional maintenance and upgrade cost that will be incurred
Sept 30, 2003	0004/07	Upgrade of two additional retorts, extending period of performance to November 30th 2004, increased funding, increasing total obligation to $264,533.11 which was a partial incremental obligation
Feb 11, 2004	0004/08	Increased funding, increasing total obligation to $301,327.85, the total amount that was requested
Feb 18, 2004	0004/09	Correction to block 14 information
Nov 29, 2004	0004/10	No cost extension to May 30, 2005
May 17, 2004	0004/11	No cost extension to November 30, 2005
Nov 29, 2005	0004/12	No cost extension to June 30, 2006
June 30, 2006	0004/13	No cost extension to June 30, 2007
Sep 16, 2006	0004/14	Increased funding, increasing total obligation to $311,327.85 to fund continued preventative maintenance of the GFE retort as well as to ensure system readiness
June 20, 2007	0004/15	No cost extension to June 30 2008
June 10, 2008	0004/16	No cost extension to December 31, 2008

3 Short Term Project Activities

3.1 Retort Upgrades

3.1.1 Retort Inventory

At the beginning of this project (May 2002) the FMT Facility had the following retorts in Inventory:

- Stock 1100, ICON 2000 version 2, serial number 64026
- Stock 1100, ICON 2000 version 2, serial number 64027
- Stock 1100, LOGTEC, serial number 39883
- Stock 1100, LOGTEC, serial number 39892

3.1.2 Retort Evaluation

The Government acquired four Stock model 1100 retorts with LogTec control system (serial numbers 39882, 39883, 39992 and 39993). These retorts were initially stored at Vanee Foods in Chicago but shipped to the CORANET Demo Facility on 8/15/01 for the purpose to install and inspect their readiness. The retorts were purchased without a required host computer system and thus not operational unless the manufacturer integrated these retort into their own LogTec host system. Two of the retorts (#39882 & #39993) were temporarily shipped to SOPAKCO Texas on September 24, 2001 in support of Enduring Justice. SOPAKCO Texas uses LogTec controllers on their own retorts and was therefore able to integrate the two GFE retorts and make them operational.

The two other retorts remained at the FMT facility and were evaluated for their readiness under a previous project STP#2011. It was determined that the current LogTec control system was out dated and not longer

supported. Recommendations were made that the control systems should use Commercial off the Shelf Hardware and Software and that each retort should be configurable to run in a stand alone mode without required host computer, giving the equipment more flexibility as GFE equipment.

3.1.3 Retort Installation

During this project retorts that needed to be used, upgraded and/or validated, were moved into the retort room and hooked up to the essential utilities. Once the upgrade and validation was completed, the retorts were disconnected, stored and readied for immediate deployment.

3.1.4 Control System Upgrade

On August 22, 2002 Stock America submitted their proposal 2520A-02 (Appendix I), detailing the cost per unit control conversion/upgrade to their ICON-SE control system, a system that has the necessary components and features, functions and tools to operate the retorts and allowing manufacturers to implement electronic record keeping solutions that meet the requirements of FDA's 21 CFR Part 11 "Rule for Electronic Records and Electronic Signatures". The new control system gave the ration producer the flexibility to run it in either a stand-alone mode or in a network configuration in which one host computer manages various retorts. Two retorts with the serial #39883 & #39992 were upgraded under this proposal

On October 2, 2003 Stock America submitted their proposal 2617-03 (Appendix II) for the conversion of two additional Stock 1100 Retorts (serial #39882 & 39993) from the existing Log-Tec controls to same Stock America's ICON-SE Control System as used in the previous two systems.

3.1.5 Retort Startup and Validation

The first two retorts (serial #39883 & 39992) were upgraded by Stock America starting January, 2003 with the replacement of the control system. Once the new control systems were in place, the retorts were hooked up to utilities and checked out for functionality. Final validation of both retorts was completed by March 2003, both in a stand-alone and host mode configuration.

The second set of retorts (serial #39882 & 39993) was upgraded by Stock America starting December 2003 with the replacement of the control system. Once the new control systems were in place, the retorts were hooked up to utilities and checked out for functionality. Final validation of both retorts was completed by March 2004, both in a stand-alone and host mode configuration.

An electronic version of the control system manual is included as Appendix III

3.1.6 Retort Storage and Maintenance

After completion of the upgrade and validation, the retorts were drained from all water and readied for shipment. The following retorts were stored and maintained before they were shipped to SOPAKCO.

- Stock 1100, ICON 2000 version 2, serial number 64026
- Stock 1100, LOGTEC, serial number 39883
- Stock 1100, LOGTEC, serial number 39892

Retort #64027 has been maintained in operational mode, and used to support the needs of the CORANET program. The retort has been used on a monthly basis to check basic functionality of pumps, valves and control system. The following maintenance issues were resolved:

- August 2003: Computer hard disk crashed and was replaced.
- October 2003: Two I/P converter on steam valve and storage vessel pressure control valve malfunctioned and were replaced.
- December 2003: CMOS Battery in PC failed and was replaced.
- April 2004: Cold water valve malfunctioned, cams and relay adjusted and unit was cleaned.
- July 2004: a Burkert Solenoid valve shorted out and was replaced.

- October 2004: The problem with the cold water valve did reoccur. A replacement motor was ordered and old motor was sent out for overhaul
- January 2005: Battery backup failure in PLC, Ladder Logic program was lost and needed to be reloaded after a new battery was installed.
- April 2005: Flapper valve did not open up fully, resulting in poor temperature distribution, water level control and temperature control. The drive motor was taken apart and realigned.
- October 2005: A problem was discovered during the heating phase of the storage drum. Upon inspection, steam sparger had broken off inside the vessel. Corroded piping and sparger were repaired/replaced.
- January 2006: A safety solenoid valve malfunctioned. This valve was replaced.
- April 2006: A problem was encountered with the UPS, causing the control system to suddenly shut down. The unit was replaced.
- August 2006: System battery of operator interface failed and was replaced causing loss of system configuration. New battery was obtained and system was reinitialized.
- September 2006: The motor on the Drain Valve failed to open and was sent to Stock America for repair.
- December 2007: A data corruption error occurred with the hard disk drive, causing the system to shutdown. A repair utility program was used to resolve this issue. A new hard disk drive might need to be installed if the problem reoccurs.
- February 2008: The Vent Valve malfunctioned. Motor and Valve were removed and overhauled by Stock America.
- February 2008: The battery backup of the PLC failed in February, causing the loss of the PLC program. New Battery was installed and the program was reloaded and retort re-validated
- March 2008: CMOS Battery in PC failed and was replaced.

3.1.7 Retort Shipment

Detailed information on the items shipped can be found in appendix IV. A summary is given below.

- On July 17 2002, one retort (serial number #64026) was shipped to SOPAKCO Texas, a system with an ICON 2000 version 2 control system. Included in this shipment were 96 retort racks (7333A) and 5 top plates (7333A)
- On April 15, 2003, two upgraded Stock 1100 retorts (serial #39883 & 39992) were shipped to SOPAKCO Bennettsville SC, included in this shipment was 16 baskets, 16 dollies
- On 11/19/03, two retorts #39882 and #39993 were received from SOPAKCO Mullins to the CAFT FMT Facility
- On April 6, 2004, two additional upgraded Stock 1100 retorts (serial #39882 & 39993), old LogTec Interfaces and a Callahan Seamer which was located at the FMT facility were shipped to SOPAKCO in Bennettsville SC.

3.1.8 Retort Inventory

On July 30th 2008 the following inventory of retorts remained at the Rutgers FMT facility

- Stock 1100, ICON 2000 version 2, serial number 64027

3.1.9 Licensed Software

The following licensed software was installed on the four upgraded retorts, including one host system that can manage all four retorts:

Host Computer:

- ❑ Microsoft 2000 Server 5.00.2195 SP2, key VRPQX-CMD48-WB74X-2YKWQ-MXHW8, License# 51876-OEM-0005045-20563
- ❑ Microsoft 2000 Professional BHY7Q-PDDTX-HJWW7-06CX9-KJMW8 (second label on PC???)
- ❑ RSView SE Client Rev 2.10.00 ser # 2524000449 9701VWSCWAENE
- ❑ RSView SE Server 100 Rev 2.00.01 ser# 2527000280 9701VWSS100AENE

- RSSQL Standard 5000 Rev 5.00.00 ser# 2562000121 9356STD2350
- RSMACC Ver 1.01.00 ser# 2418000104, 9515-MACCCD-10.16.02 (not installed)
- Microsoft Office 2000 SBE, lic#: 54188-OEM-1792691-89839
- Microsoft SQL Server 2000 Standard SP2 BHD87-9R9XR-97KFF-PTWVP-K7P3M

Retort 882 (PC#M930100184)
Microsoft 2000 Professional, Version 5.00 2195, SP2, key THJRC-MPBJV-VWP4W-4PTJY-298JM, License #
- View SE Client Rev 3.00.01 ser # 2524002405 , cat#: 9701VWSCWAENE
- RSView SE Server 25 Rev 3.00.01 ser# 2526000889, cat#: 9701VWSS025AENE
- RSSQL Standard 1500 Rev 6.00.02 ser# 1126000556, cat#: 9356STD2300
- Microsoft Office XP SBE, VDPTM-7HF9H-WR64P-R7FHR-TVT63
- Microsoft SQL Server 2000 Personal Edition, SP-3a B4X86-JGK67-FTFQJ-VKRKG-DXMMT

Retort 993 (PC#M930100190)
- Microsoft 2000 Professional, Version 5.00 2195, SP2, key FYP96-KHDWT-HB8J9-MDBJX-Y2DJ, License # 51873-OEM-0011577-07407
- RSView SE Client Rev 3.00.01 ser # 2524002406, cat#: 9701VWSCWAENE
- RSView SE Server 25 Rev 3.00.01 ser# 2526000890, cat#: 9701VWSS025AENE
- RSSQL Standard 1500 Rev 6.00.02 ser# 1126000557, cat# 9356STD2300
- Microsoft Office XP SBE, GTGT6-VPQGC-77326-37FKW-DGX2M
- Microsoft SQL Server 2000 Personal Edition, SP-3a GHXDG=H74RV-JKJX4-9HTKH-QH6QY

Retort 883
- Microsoft 2000 Professional, Version 5.00 2195 SP 3, key FC9FD-9DRGV-GX4X7-FJPD8-VRMQJ, License # 51837-OEM-0009955-23195
- RSView SE Client Rev 2.10.00 ser # 2524001131 , 9701VWSCWAENE
- RSView SE Server 25 Rev 2.00.01 ser# 2526000236, 9701VWSS025AENE
- RSSQL Professional 1500 Rev 5.00.00 ser# 1131000765,
- Microsoft Office XP 2000 SBE, DWMD4-4YYHR-BDRGJ-6J2WF-TCD2J
- Microsoft SQL Server 2000 Personal Edition, F7769-PCT2R-9MP4C-2HCWG-DQJBT
- Microsoft Internet Explorer, Version 6.0.2800.1106, SP 1

Retort 992
- Microsoft 2000 Professional, Version 5.00 2195 SP 3, key MHM4D-HPJK2-KVXMB-HQQVY-8MYQG, License # 51837-OEM-0009955-23194
- RSView SE Client Rev 2.10.00 ser # 2524000448, 9701VWSCWAENE
- RSView SE Server 25 Rev 2.00.01 ser# 2526000235, 9701VWSS025AENE
- RSSQL Professional 1500 Rev 5.00.00 ser# 1131000766, 9356PRO2300
- Microsoft Office XP 2000 SBE, QT343-8H63D-CGMMQ-2VDR4-8KXF6
- Microsoft SQL Server 2000 Personal Edition, QXC83-XVKDY-KCPH3-K4YRF-FCX73
- Microsoft Internet Explorer, Version 6.0.2800.1106, SP 1

3.1.10 Technology Support

After completing the upgrades of the final four GFE retorts and giving initial support to SOPAKCO in getting the upgraded GFE retorts installed and operational, we continued to support the GFE retort equipment by making our expertise available to DSCP and the ration industry.

- **October 2004:** The host computer with related software was send to Stock America beginning of July for an upgrade. Stock America completed the software development and installation by October 14, 2004 after which the host computer was send to SOPAKCO. SOPAKCO used the host system to run all four retorts in a client server mode.
- **September 2006:** Ameriqual personnel visited the Demo facility to become familiar with the ICON control system in preparation to DSCP planned relocation of three Stock 1300 GFE retorts

to Ameriqual. Additional technology transfer and assistance was given towards the end of the month once the retorts had been received and identification of a few parts was required.

- **October 2006:** Technology transfer and assistance was given to Ameriqual during the installation and start-up of the GFE-Stock-1300 retorts. List of parts and software backups were provided as well as passwords for both the OI and PLC program.

4 Appendix:

Appendix I: Stock America Proposal #2520A-02
Appendix II: Stock America Proposal # 2617-03
Appendix III: ICON-SE Operating Manual
Appendix IV: Retort Shipment Information

Appendix I: Stock America Proposal #2520A-02

STOCK AMERICA INC.
STERILIZATION SYSTEMS DIVISION
1935 Evans Road
Cary, NC 27513

PH. (919) 678-8201
FX. (919) 678-8204

PROPOSAL # 2520A-02

Prepared by T. Schurr

TO: RUTGERS UNIVERSITY **DATE: AUGUST 22, 2002**
120 NEW ENGLAND AVENUE
PISCATAWAY, NJ 08854

REFERENCE: STOCK CONTROL CONVERSION

ATTENTION: RIEKS BRUINS

We are pleased to provide the following firm quotation for the conversion of 2 (two) Stock Retorts to our ICON Control System. This quote is valid for 45 days from the date of issue.

Stock Retort Control Upgrade – ICON Intelligent Control Network

1. Hardware conversion including:
    a. Removal of existing Logic Controller and Log-Tec Interface
    b. Modification or replacement of front panel door with appropriate cutouts, switches and legend plates
    c. Substitution of Allen-Bradley SLC500 5/05 processor and Windows 2000 Industrial PC Operator Interface
    d. Retention of all transmitters, transducers, sensors, switches and level sensors unless itemized below.
        i. New Minco temperature transmitters for SV and PV control
    e. Retention of motor control components, I/P transducers, relays and contacts.
    f. Add UPS – uninterruptible power supply/battery back up system
    g. Shielded analog cable for all analog inputs
    h. Installation, wiring, start up and operational validation
    i. Conduit and utility services to machine by customer– termination and validation by Stock

2. Software conversion, including:
    a. Implementation of Stock America developed and maintained ICON Automated Batch Retort software code for both Operator Interface and SLC500 processor
    b. Installation, validation and training
    c. ICON user manuals

3. On-site Time and Expenses, including;
    a. All travel and living expenses for service and process validation personnel
    b. Temperature Distribution and Heat Penetration testing is not included.

PRICE, PER UNIT … $ 25,495.00

4. ICON Host/Supervisory System, including;

    a. All PC hardware, software and printer
    b. Capacity for 2 retorts (Maximum of 10 with license upgrade)
    c. ICON Automated Batch Retort software, consisting of:
        i. Recipe Management, incl. Embedded Ball Formula Calculation

1935 Evans Road
Cary, NC 27513

Prepared by T. Schurr

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ii. Process Data Logging with Retort Status Screen and FDA accepted batch report printouts
iii. Tools to view and re-print past batch reports
iv. Security Administration

d. Compliance with 21 CFR Part 11 electronic record keeping requirements
e. Process Data is stored in an ODBC compliant database.

PRICE, PER HOST SYSTEM … $ 11,875.00

5. Change Management Software

a. Manufacturers who seek to achieve compliance with the FDA's 21 CFR Part 11 Rule for Electronic Records and Electronic Signatures must implement Best Practices, Corporate Policies, or Standard Operating Procedures (SOPs) to enforce security measures and ensure the safeguard of electronic record and signature information. The manufacturer must also institute qualified training to individuals responsible for these systems.

b. The ICON Automated Batch Retort System is comprised of components that include the necessary features, functions and tools to assist in allowing manufacturers to implement electronic record keeping solutions that meet the requirements of the FDA's 21 CFR Part 11 Rule for Electronic Records and Electronic Signatures.

c. Change Management Software provides security, version control, audit trails, central storage and automated backup and compare.

PRICE, for CHANGE MANAGEMENT SYSTEM … $ 5,000.00

6. Optional Upgrades, <u>per unit</u> additional pricing

a.	ES Mode piping and ES Mode valves, inc. installation	… $	3,180.00
b.	Barksdale Steam Pressure Switch – install by customer	… $	108.00
c.	VFD Conversions, 5 hp, inc. polychain conversion and installation	… $	2,540.00
d.	Analog Drain Valve, for water level control, w/ DIN flanges, inc. wiring, configuration and validation	… $	2,585.00
e.	Additional rotor position proximity switch, configured and wired	… $	140.00
f.	Temperature Distribution verification, per unit, including all travel and Living expenses (based on 2 trips for 4 retorts)	… $	2,150.00

7. Conversion from ICON v.4 Distributed Server-Client to "Stand-alone", including

a.	Upgrade R.A.C. 6181 to Server Version (Pentium III, 256 MB)	… $	807.00
b.	Add MS Office 2000 Pro	… $	408.00
c.	Add One (1) RSView SE Server (25 Display)	… $	2,800.00
d.	SAI Engineering Support	… $	1,000.00
	Total, Without Options	**$**	**5,015.00**
e.	Optional SQL Server 2000	… $	1,607.00
f.	Optional Crystal Reports	… $	552.00

STOCK AMERICA INC.
STERILIZATION SYSTEMS DIVISION
1935 Evans Road
Cary, NC 27513

PH. (919) 678-8201
FX. (919) 678-8204

PROPOSAL # 2520A-02

Prepared by T. Schurr

Assumptions:

1. Original components, including I/P transducers, pressure switches, level sensors, motor starters, relays and other components are retained unless specifically listed. ***If necessary, Stock will repair, replace or upgrade existing retort components, valves or field devices at additional cost.***

2. The ICON Automated Batch Retort System is FDA accepted and U.S.D.A. approved and year 2000 compliant. Compliance with 21 CFR Part 11 requires implementing the Change Management software solution in conjunction with the ICON system. Validation for 21 CFR Part 11compliance is available at extra cost.

3. Additional ICON Host Systems are available for $10,950.00.

4. Additional Change Management systems are available for $11,675.00

5. Additional Operator Interface systems are available for $9,875.00

6. Additional SLC500 systems are available for $8,475.00

Contributions:

This proposal contains contributions offered by Stock America to offer a price effective control solution to Rutgers University. Below is a table that details the amount of these contributions Stock America has offered within this proposal.

Price Reduction for Project Engineering and Software Development	Savings of $8,800.00
Price reduction for ICON Automated Batch Retort System	Savings of $1,475.00
Price reduction for Operator Interface	Savings of $4,800.00 each
Price reduction for Change Management Software	Savings of $6,675.00

Delivery: Approximately 8 - 10 weeks after receipt of down payment

Payment Terms: 50% down-payment with firm order
40% Upon Shipment
10% After Start Up, Not to exceed 60 days after shipment

Shipping: F.O.B. Cary, NC. Shipping costs will be pre-paid and added to the final invoice.

Appendix II: Stock America Proposal # 2617-03

STOCK AMERICA INC.
STERILIZATION SYSTEMS DIVISION
1935 Evans Road
Cary, NC 27513

PH. (919) 678-8201
FX. (919) 678-8204

PROPOSAL # 2617-03

Prepared by T. Schurr

TO: RUTGERS UNIVERSITY
120 NEW ENGLAND AVENUE
PISCATAWAY, NJ 08854

DATE: OCTOBER 2, 2003

REFERENCE: STOCK CONTROL CONVERSION

ATTENTION: RIEKS BRUINS

We are pleased to provide the following proposal for the conversion of 2 (two) Stock 1100 Retorts currently located at SOPAKCO in Mullins, SC from existing Log-Tec controls to Stock America's ICON^{SE} Control System.. This quote is valid for 60 days from the date of issue.

Stock Retort Log-Tec Control Upgrade – ICON^{SE} Secure Control Network

1. Hardware conversion including:
    a. Removal of existing Log-Tec controls
    b. Acquisition, assembly and installation of new control back panel in existing front enclosure, including mounted relays, contacts and terminal blocks, with interconnections pre-wired
    c. Modification of front panel door with appropriate cutouts, switches and legend plates
    d. Allen-Bradley SLC500 5/05 processor and Windows 2000 Industrial PC Operator Interface
    e. Retention of all transmitters, transducers, sensors, switches and level sensors unless itemized below
        i. New Minco temperature transmitters for SV and PV control (32-302 Deg F)
    f. Retention of motor control components, I/P transducers, relays and contacts
    g. UPS (for Industrial PC only)
    h. 16 AWG blue wire and shielded analog, control power transformer, DC power supply, terminal blocks, relays, fuses Etc.
    i. Copper tubing, fittings, flex conduit Etc.
    j. Installation, wiring, start up and operational validation
    k. Conduit and utility services to machine by customer– termination and validation by Stock America

2. Software conversion, including:
    a. Implementation of Stock America developed and maintained ICON^{SE} Stand-alone Automated Batch Retort software for both Operator Interface and SLC500 processor
    b. Installation, IQ and OQ validation and training
    c. ICON^{SE} user manual

3. On-site Time and Expenses, including;
    a. 2 (two) weeks of time, travel and living expenses for a Stock America Service Technician
    b. 1 (one) week of time, travel and living expenses for a Stock America Controls Engineer
    c. ½ (one half) week of time, travel and living expenses for a Stock America Process Technologist (temperature distribution and heat penetration testing is not included)

STOCK AMERICA INC.
STERILIZATION SYSTEMS DIVISION
1935 Evans Road
Cary, NC 27513

PH. (919) 678-8201
FX. (919) 678-8204

PROPOSAL # 2617-03

Prepared by T. Schurr

PRICE, PER UNIT

- **ICON [SE] conversion, including Client Software … $ 28,140.00**
- **add upgrade to 'Standalone' ICON [SE] … $ 5,015.00**
- **add validation for Distributed Client – Server deployment … $ 4,100.00**

4. Optional Upgrades (per Retort)

a.	ES Mode valves including installation	… $	3,180.00
b.	Barksdale steam pressure switch (installation by customer)	… $	95.00
c.	VFD conversion including poly-chain, SLC RIO module & enclosure	… $	3,275.00
d.	Analog Drain valve for water level control, w/ DIN flanges, including I/P transducer, wiring, configuration and validation	… $	2,585.00
e.	Additional rotor position proximity switch, configured and wired	… $	75.00
f.	Analog PV level transmitter and stand-pipe	… $	1,815.00
g.	1 (one) Manual SV temperature gage	… $	250.00
h.	2 (two) Ashcroft pressure transmitters	… $	1,065.00

Assumptions:

1. Original components, including I/P transducers, pressure switches, level sensors, motor starters, relays and other components are retained unless specifically listed. ***If necessary, Stock will repair, replace or upgrade existing retort components, valves or field devices at additional cost.***

2. The ICON Automated Batch Retort System is FDA accepted and U.S.D.A. approved and year 2000 compliant. Validation for 21 CFR Part 11compliance is available at extra cost.

3. It is assumed that the Retorts will be brought from SOPAKCO to the CAF.T. facility in New Jersey for performing this conversion (Stock America is not responsible for transportation of the Retorts).

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Prepared by T. Schurr

Contributions:

This proposal contains contributions offered by Stock America to offer a price effective control solution to Rutgers University. Below is a table that details the amount of these contributions Stock America has offered within this proposal.

Price Reduction – discount on services	Savings of $4,025.00 (per Retort)
Price Reduction – discount on software	Savings of $4,510.00 (per Retort)
Price Reduction – discount on hardware	Savings of $3,375.00 (per Retort)

Delivery: To Be Determined

Payment Terms: 50% down-payment with firm order
40% upon Shipment
10% after Start-up, not to exceed 60 days after shipment

Shipping: F.O.B. Cary, NC. Shipping costs will be pre-paid and added to the final invoice

Appendix III: ICON-SE Operating Manual

STOCK America Inc.

OPERATIONS

MANUAL

ICON^{SE}

Version 1 Revision 2
Date: 4/30/03

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STOCK America Inc. Contact Information

***Main Office*:** **995 Badger Circle; Grafton, WI 53024**

Phone	**(262) 375 – 4100**
Fax	**262) 375 – 4101**
E Mail	**stockamerica.com**

***Southeastern Office*: 1935 Evan RD; Cary, N.C. 27513**

Phone	**(919) 687 – 8201**
Fax	**(919) 687 – 8204**
E Mail	**stockamerica.com**

Sales Department

Dave Polvino: **1935 Evan RD; Cary, N.C. 27513**

Phone	**(919) 687 – 8201**
Fax	**(919) 687 – 8204**
E Mail	**davep@stockamerica.com**

Jay Cobb: **1935 Evan RD; Cary, N.C. 27513**

Phone	**(919) 687 – 8201**
Fax	**(919) 687 – 8204**
E Mail	**jayc@stockamerica.com**

ProTecS Process Technology Services Division: **Contacts**

Tom Pampel: **995 Badger Circle; Grafton, WI 53024**

Phone	**(262) 375 – 4100**
Fax	**(262) 375 – 4101**
Cell Phone	**(262) 573 – 9576**
E Mail	**tomp@stockamerica.com**

Rick Way: **67 Painter Ave; West Haven, CT 06516**

Phone	**(203) 931 – 0910**
Fax	**(203) 931 – 0919**
Cell Phone	**(203) 494 – 0087**
E Mail	**rickw@stockamerica.com**

SECTION 1 - GENERAL OVERVIEW

a. Sequence of Events – Pre-start up

Each project involving a new retort purchase or a controls retrofit is traceable to a *Technical Description*, *Control / Electrical Specification* and *Installation Qualification Document* that is provided in written form by STOCK America, Inc. If there are any questions regarding installation, start up or technical detail, the *Technical Description and Control Specification* as well as the *Installation Qualification Document* should be consulted. For additional copies or questions regarding this information, please contact your STOCK America, Inc. Project Manager.

Installation assistance is available from the STOCK America, Inc. technical department in the form of utility recommendations, layout options / drawings and relevant electrical schematics as defined in the project documentation summary. Phone support is included for an agreed upon time frame at no extra charge; on-site assistance may be requested and would be quoted at prevailing service rates.

b. Sequence of Events – Start Up

After retort and control installation is complete, the following steps need to be taken to insure a safe and efficient start up. This information is recorded on the STOCK *Installation Qualification* document.

Typical start up sequence:

1. I/O and Electrical check out.
2. Retort Survey
3. Mechanical and Dry Test of valves and controls.
4. Wet Test of valves and controls requires completion of proper utility connections:

a. Electrical, Steam, Water, Air and Drain.

5. Initial Testing and Control Optimization with recipe.
6. Temperature Distribution testing.
7. Heat Penetration testing.
8. Operation and Maintenance training.
9. Retort Validation.
10. Initial Product Run.
    a. A minimum of one retort charge of baskets with ballast (preferably actual product containers filled with water) will be need after wet testing in order to properly set machine operating parameters. If diverse containers and/or product should be considered, representative containers from each product will need to be available.

Stock personnel will make every effort to verify proper operation of the equipment prior to releasing the unit to the customer. It is the customers' responsibility to determine when function and operating experience is sufficient to release the equipment for production purposes.

SECTION 2 - SYSTEM SECURITY

a. General

- ***ICON^{SE}*** Control Systems are designed to be compliant with CFR 21 Part 11 regulations concerning “Electronic Records: Electronic Signatures”
- ***ICON^{SE}*** Control Systems require a *User Name & Password* to be entered each time there is a user input that requires saving the change to a field.
- It is the responsibility of the “Individual User” to protect the security of their password and change them on a routine basis.
- It is also the responsibility of the customer to determine which level of access should be granted to personnel. Stock will configure passwords initially and train the customers *Administrator* on adding, deleting and changing user privileges.

b. Security Levels

- **Administrator** - has the ability to make the highest level changes to Windows, *ICON^{SE}* user password information, manage the installed PC software and hardware.
    - Unlimited access
- **Manager** - has the ability to completely operate the *ICON^{SE}* system including making modifications to and creating new r*ecipes*.
    - No access to SQL Server Database or changes to Windows
- **Operator** - has the ability to run the retort, place holds on, pauses on and abort the process
    - No access to Recipe Management functions, SQL Server Database and changes to Windows
- **Guest** - has ability to view current screen only
    - No access beyond *Logon*

c. Managing User Accounts

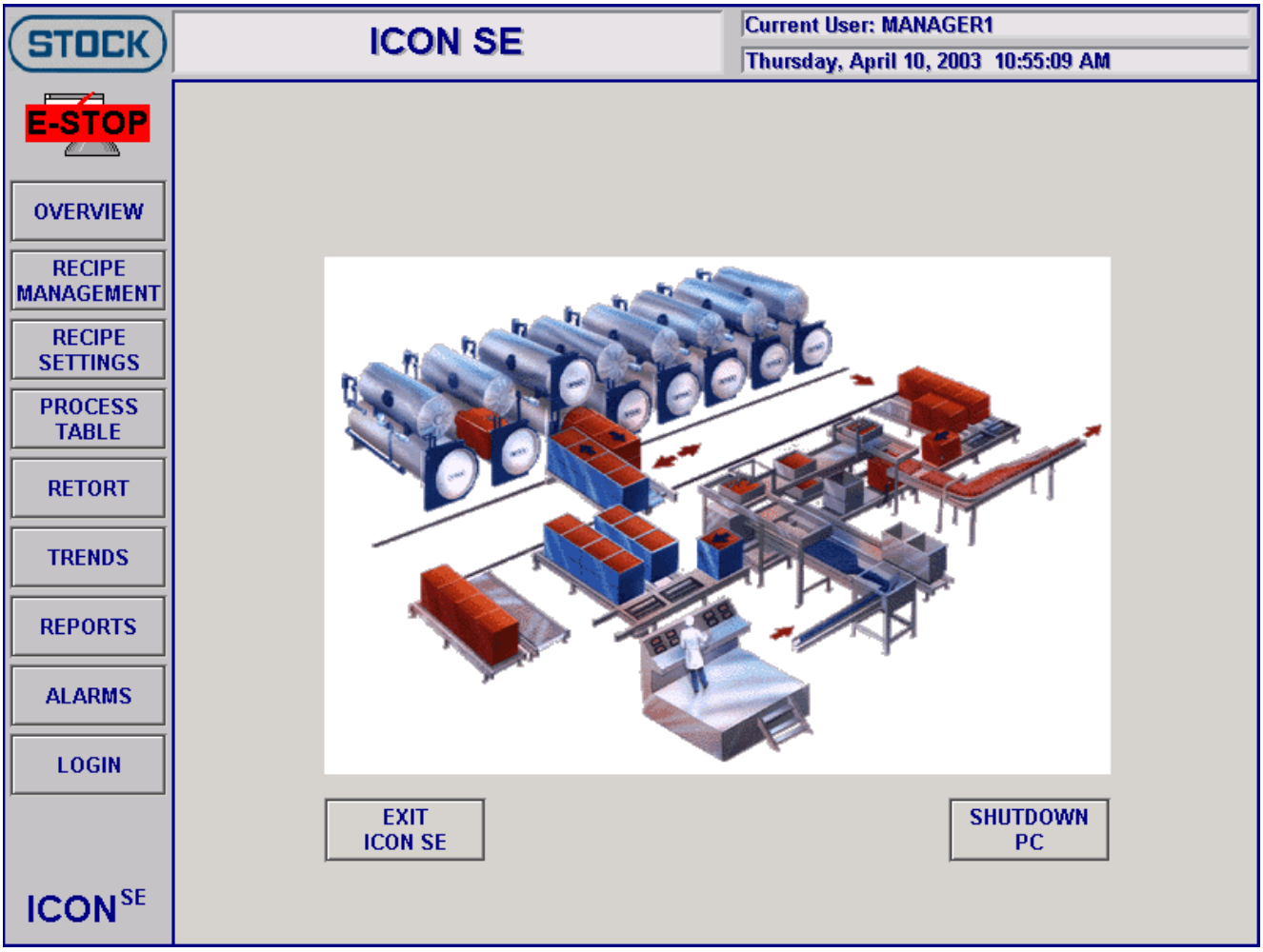
- **System Administrator level access is required to manage user accounts.**
- **Accounts must be changed in both the ICON ^{SE} application and the Windows operating system.**

Step 1 – Shut down ICON SE and Windows system

- Select *Shut Down PC* button
- Power off PC
- Attach Windows Keyboard and Mouse to HOST PC
- **Restart HOST PC See Section 4(d) for procedure**

Step 2– Exit ICON SE system

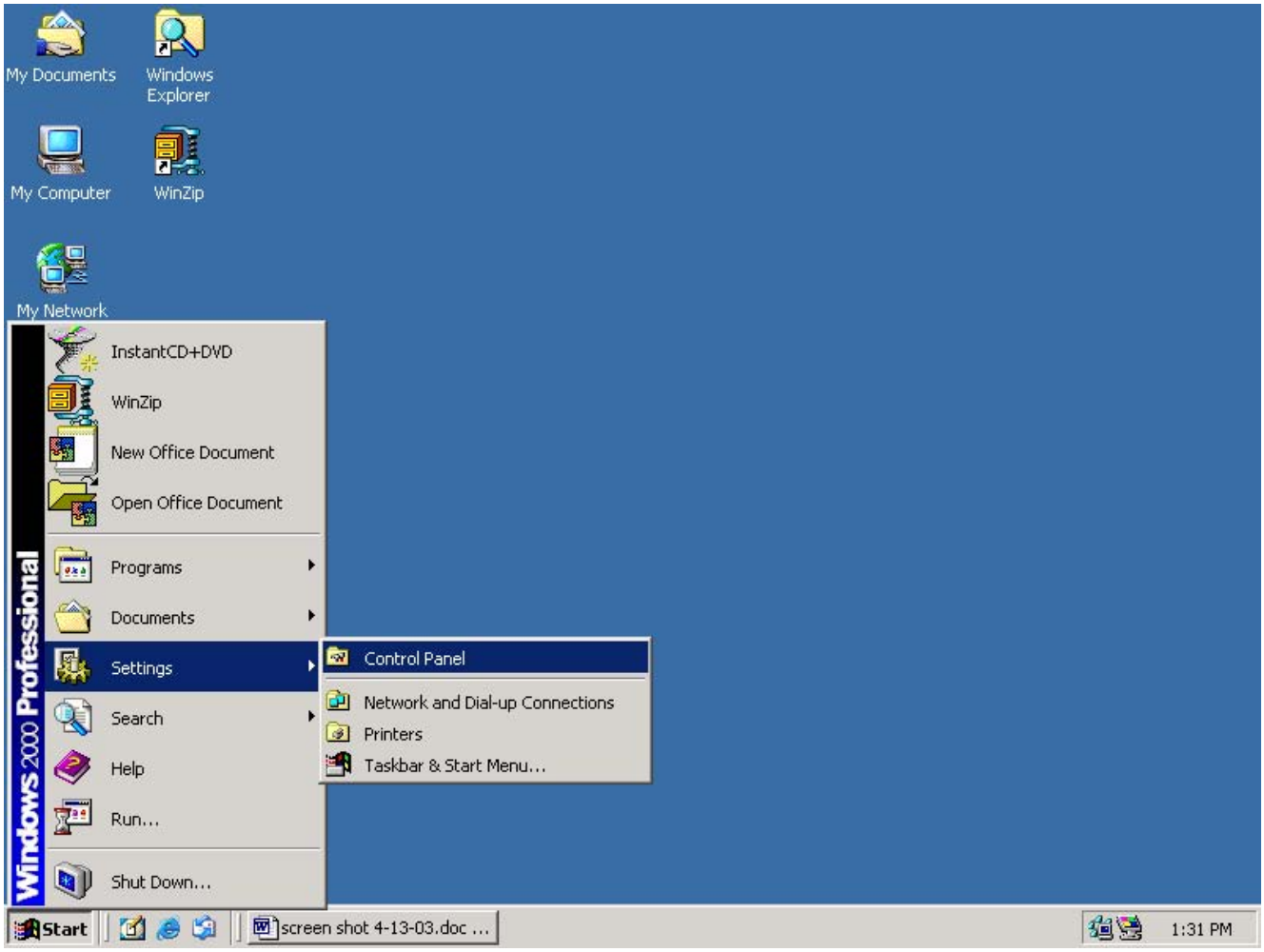
- *Login* as Administrator
- On *Overview Screen*, Select *Exit ICON SE* button to gain access to *Windows* desk top page



- Log off current windows user
- Login windows user with administrator privileges

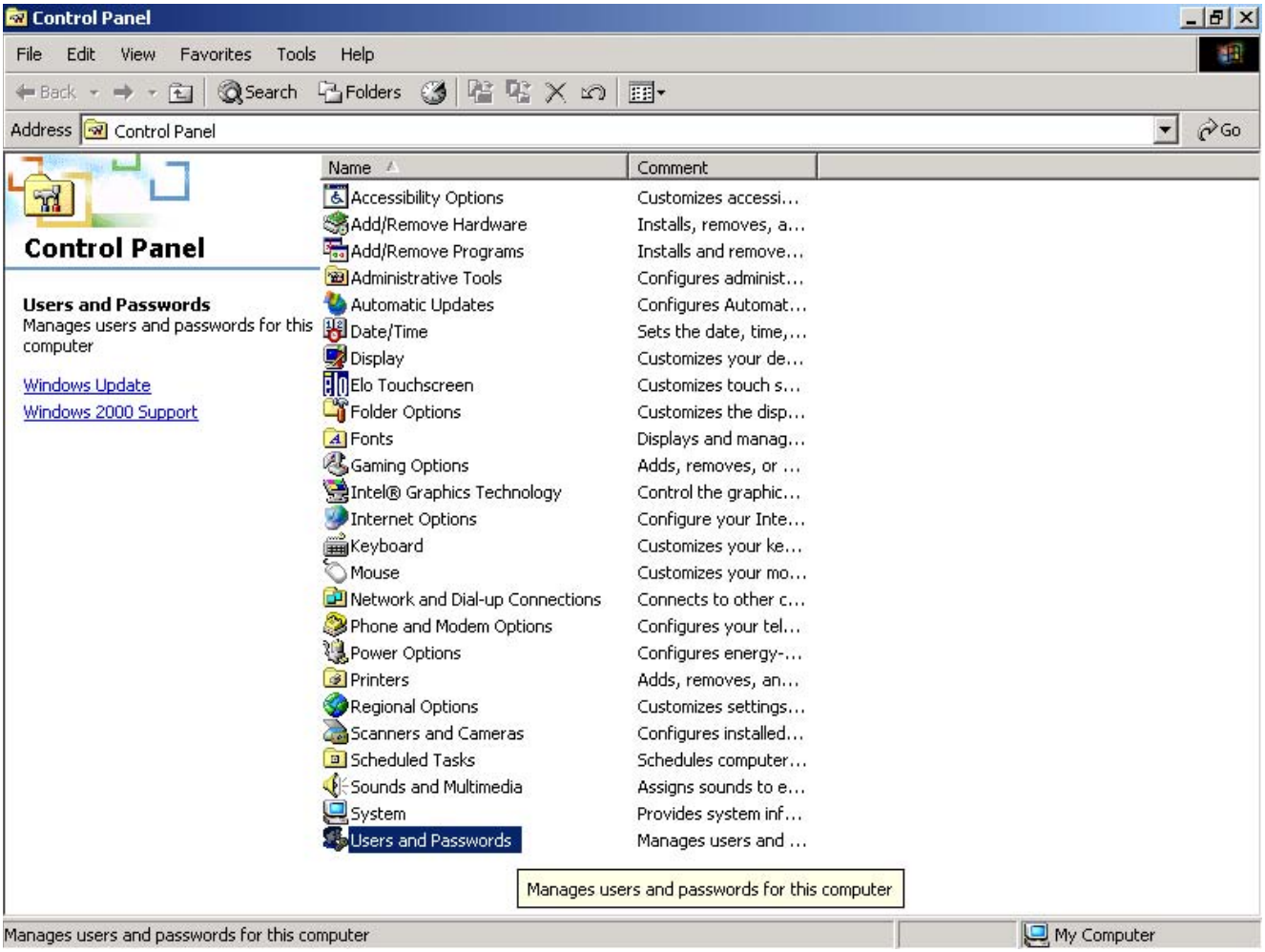
Step 3 – Windows User Account Administration

- Select Windows Menu: *Start* → *Settings* → *Control Panel*



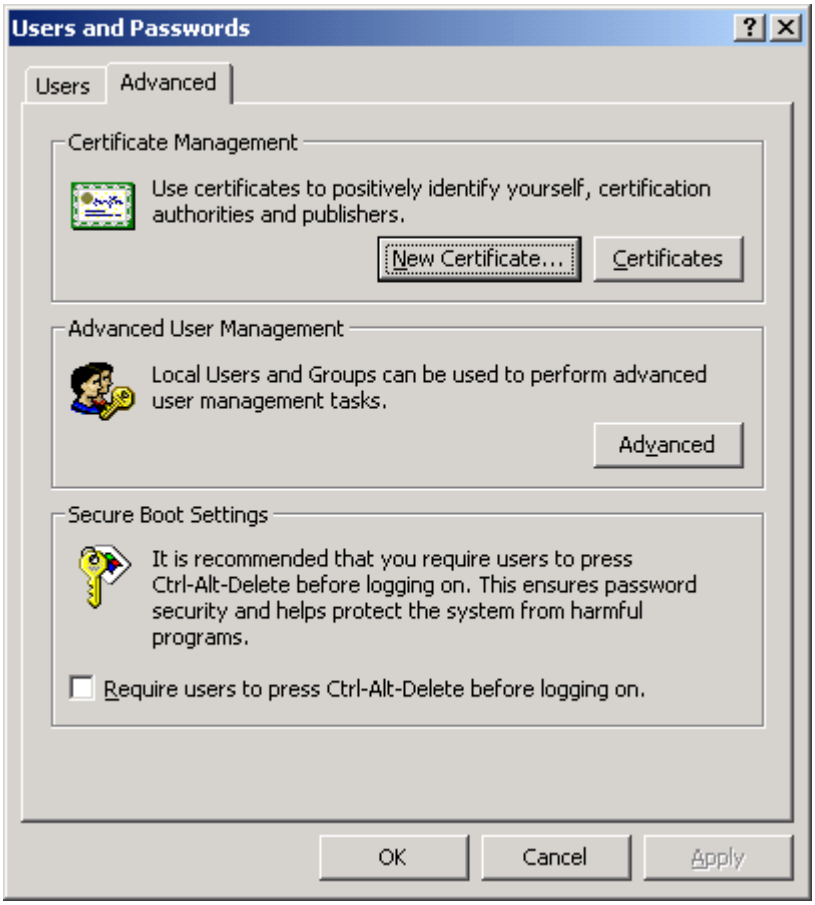
Step 4 – Windows User Account Administration

- Select Windows Menu: *Control Panel* → *Users and Passwords*



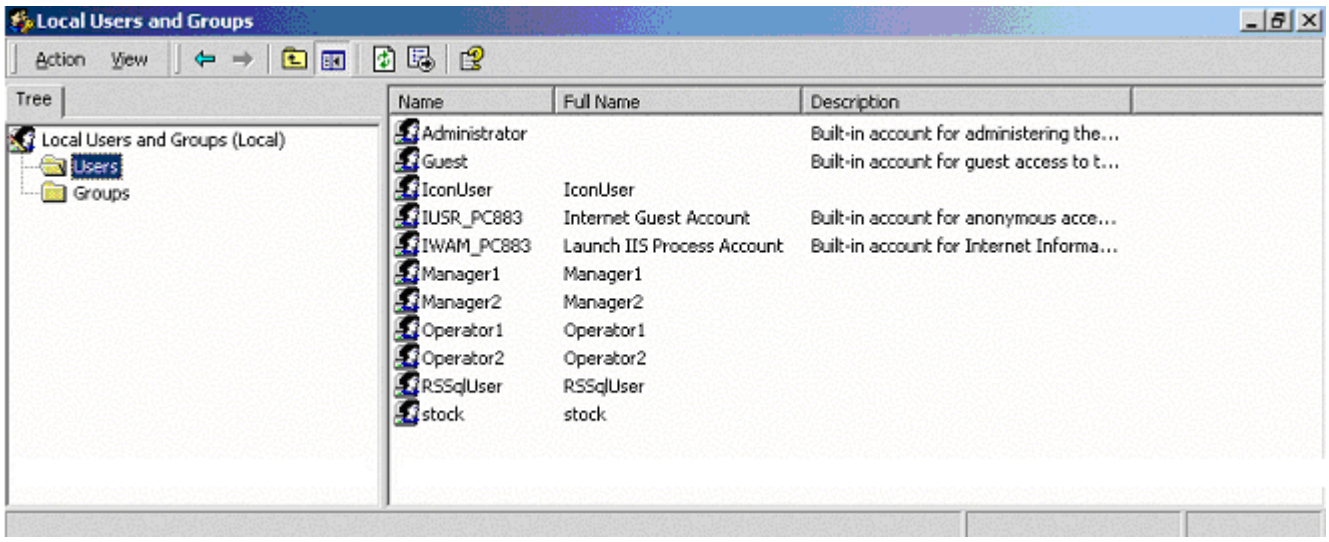
Step 5 – Windows User Account Administration

- Select Windows Menu: *Users and Passwords* → *Advanced Tab* → *Advanced* button



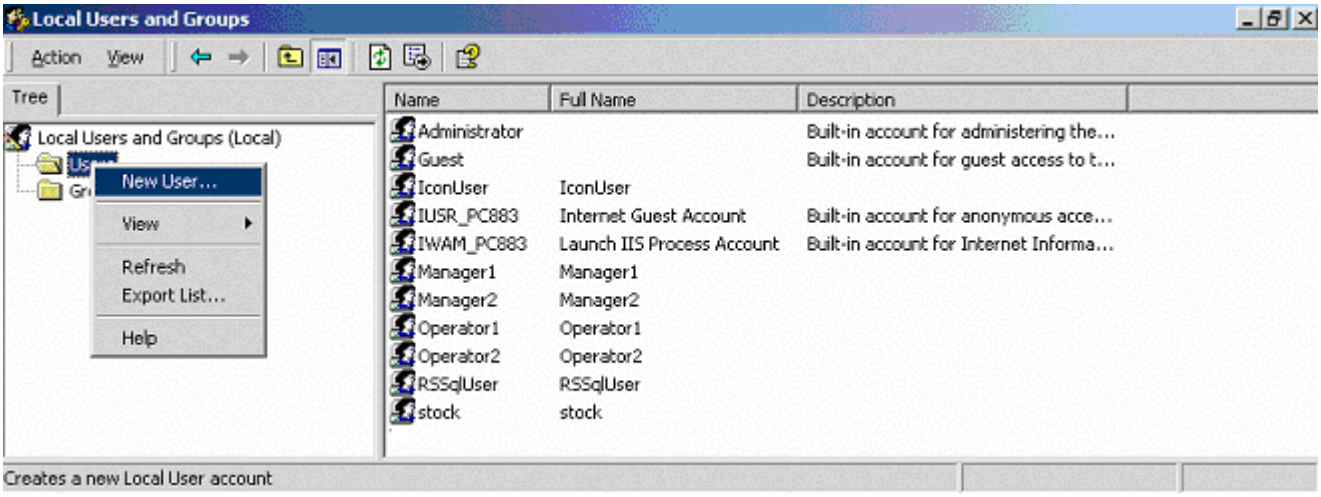
Step 6 – Windows User Account Administration

- Select *Users* folder



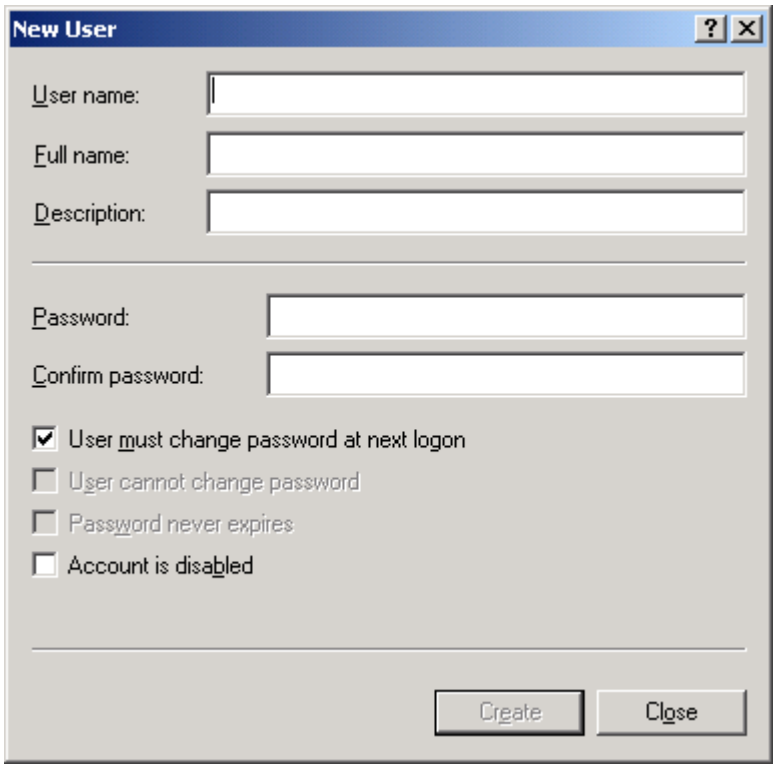
Step 7 – Windows User Account Administration – Local Users & Groups

- Right Click on *Users folder*
- Select *New User*



Step 8 – Windows User Account Administration – User Information

- Fill in all fields as per corporate IT standards
- When finished Select *Create* button



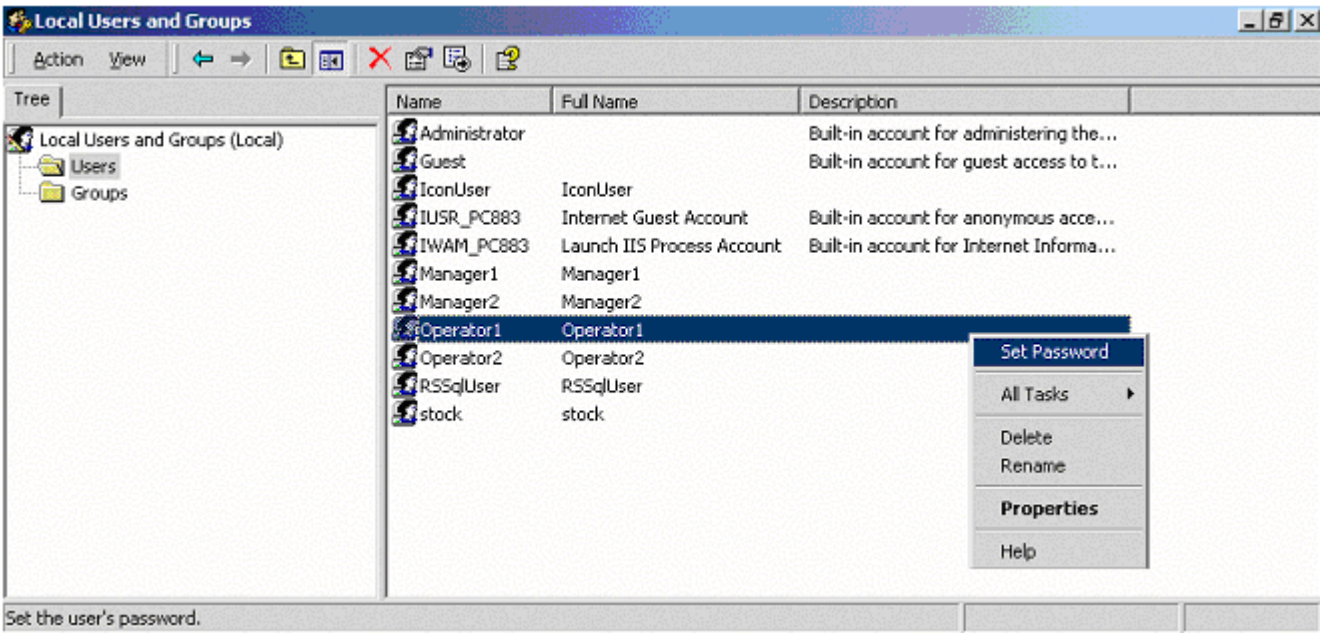
d. Changing Windows User Account Passwords

General

- **See SECTION 2(c) to access this page**

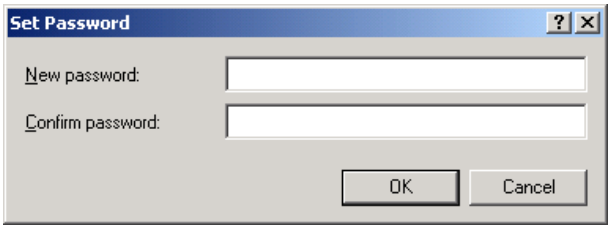
Setting Password

- Right click on the windows user account you wish to modify.
- Select Set Password



Entering Password

- Enter information into each field right click *OK*



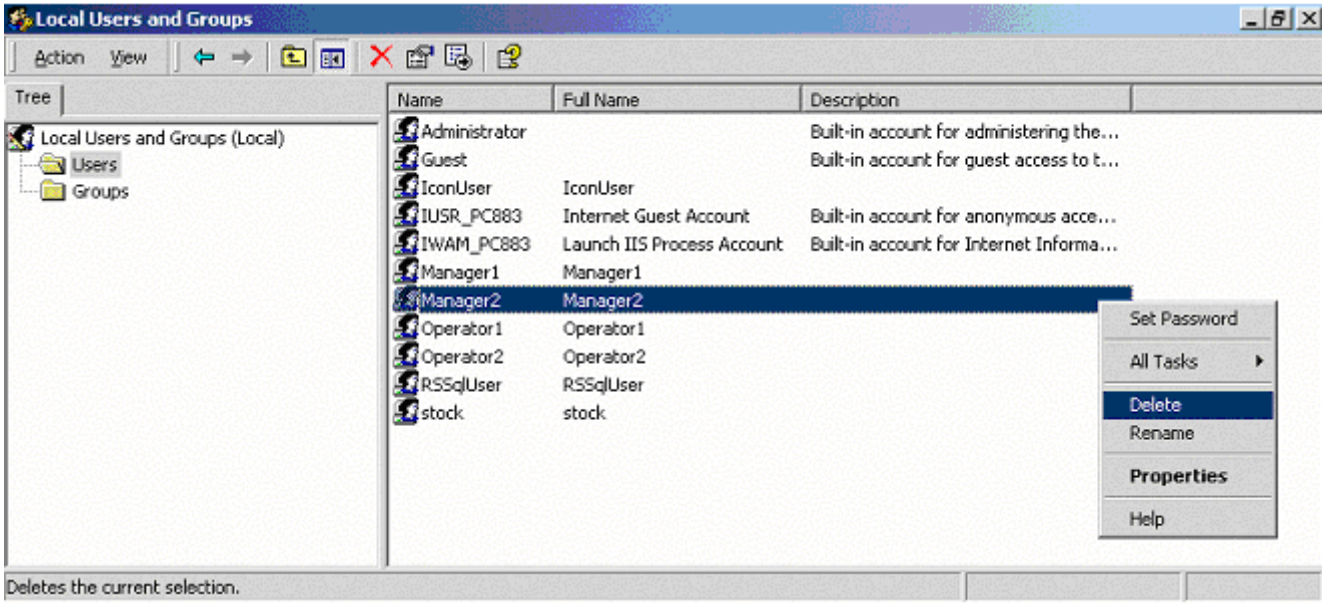
Confirming Password Change

- Click OK

e. Deleting Windows User Account

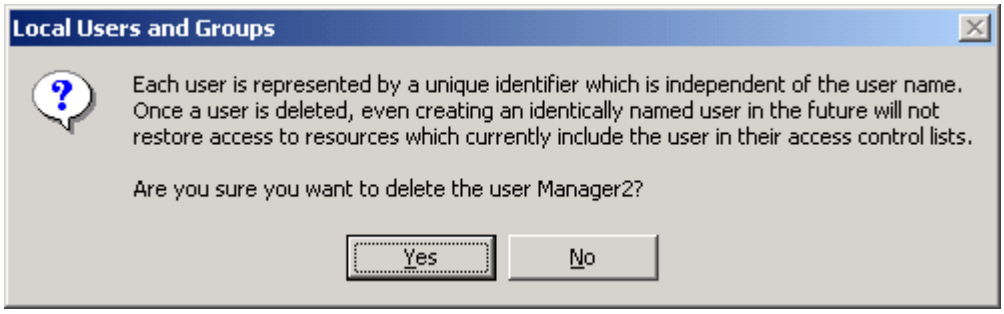
General

- See SECTION 2(c) to access this page
- Select *Users*
- Right click on *User* to be removed
- Select *Delete*



Deletion Warning

- Click *Yes* to delete this user



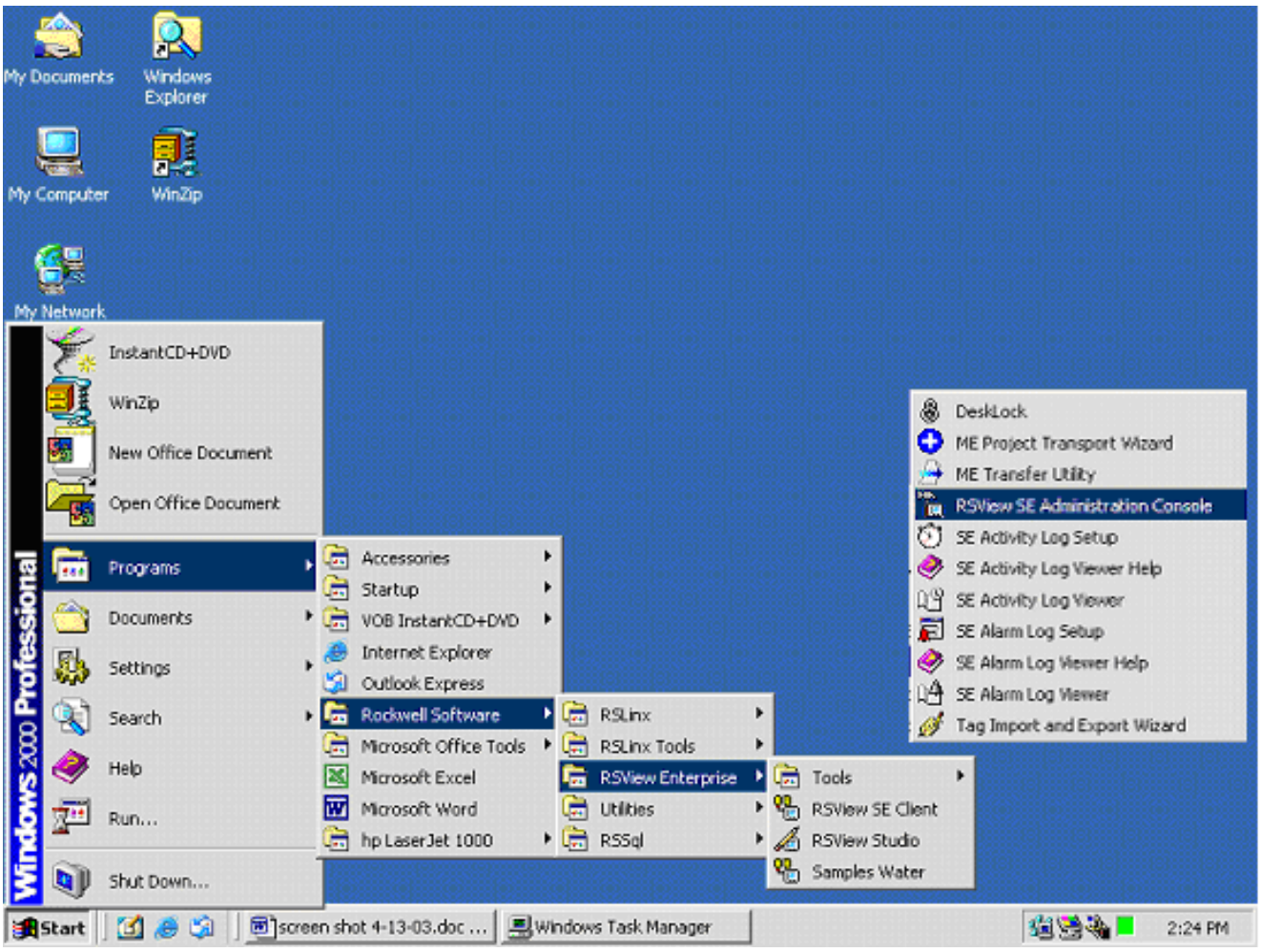
f. Managing User Accounts in RS View

General

- **See SECTION 2(c) to access this page**
- You must be logged into the PC as a user with *Administrator* privileges.

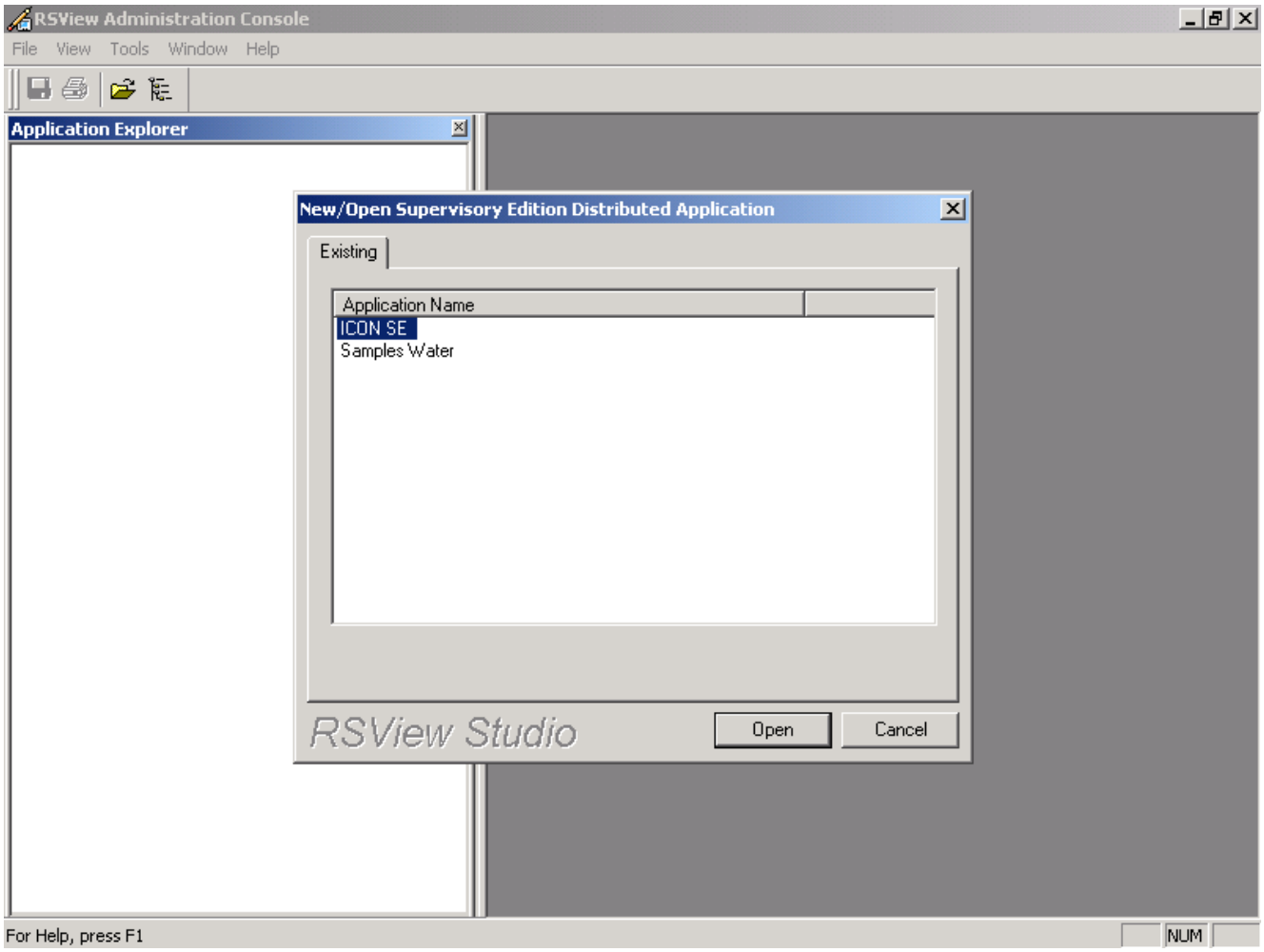
Procedure

- Follow the path:
  - Select *Windows Start* → *Programs* → *Rockwell Software* → *RSView Enterprise* → *Tools* → *RSView Administration Console*.



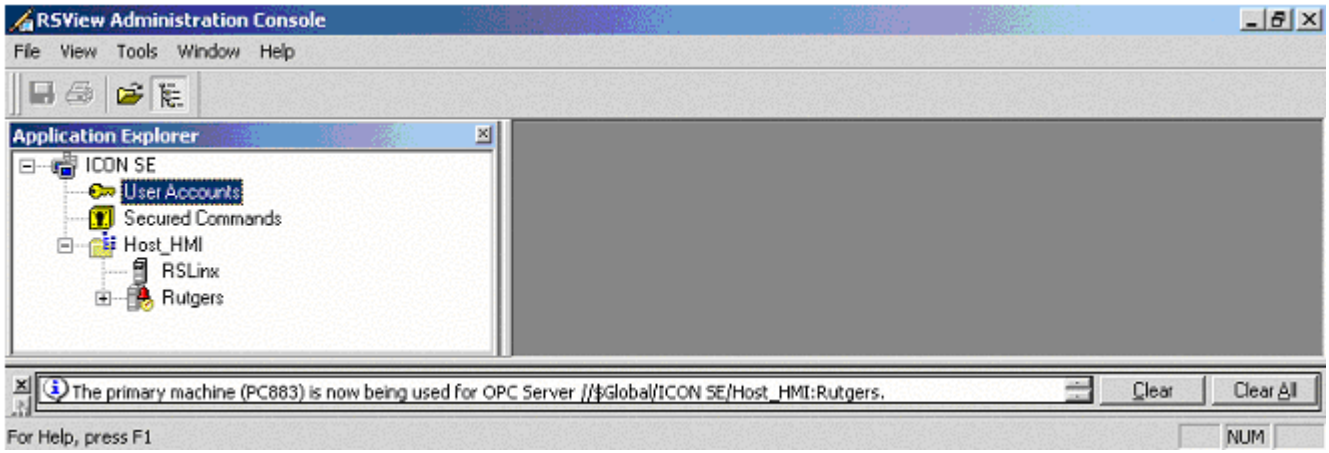
Opening Application

- Open *Application Explorer* in *RSView Administration Console*
- Select *New/Open Supervisory Edition Distributed Application*
- Click on *Existing* tab
- Click on *ICON SE*



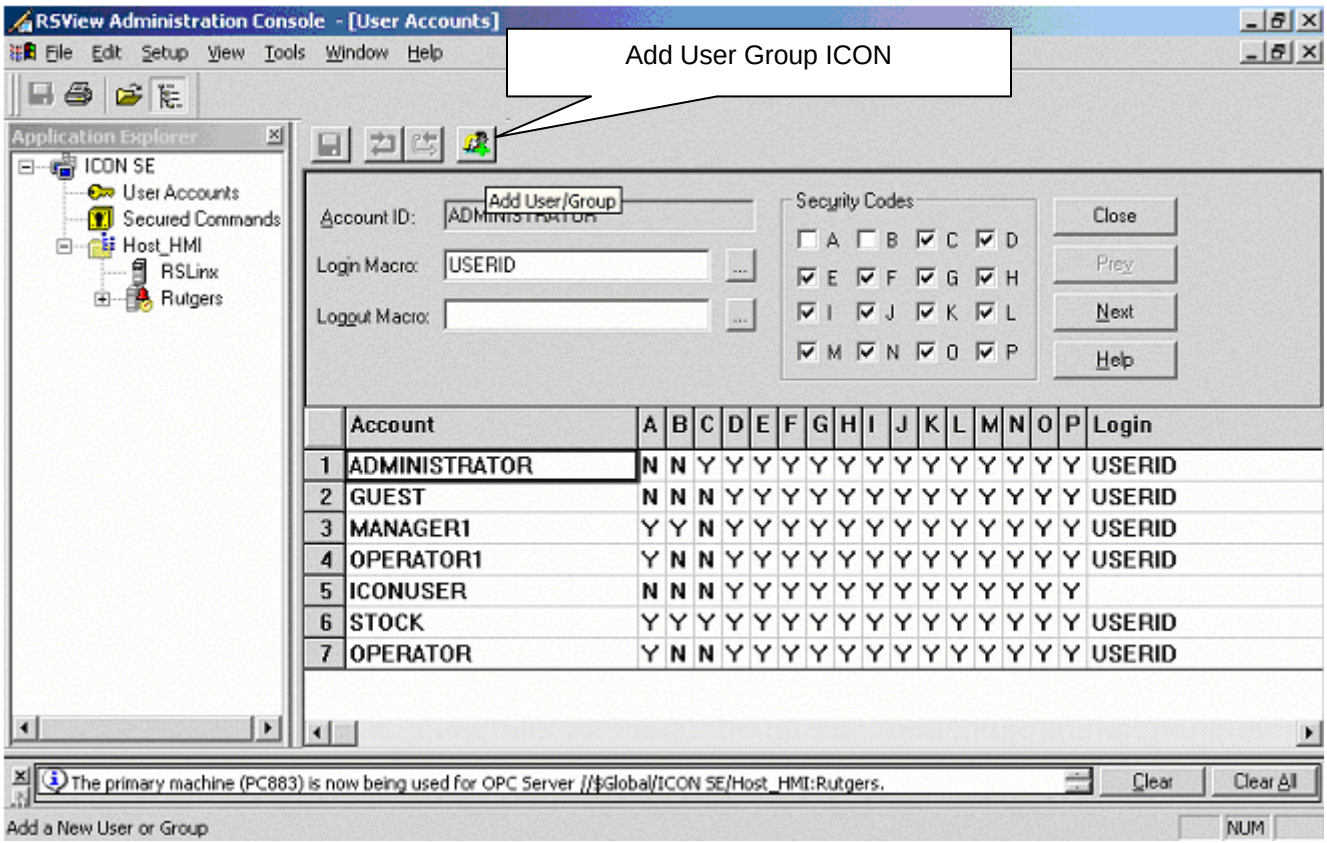
Selecting User Accounts

- Double click on *User accounts* to open *RS View User Accounts*



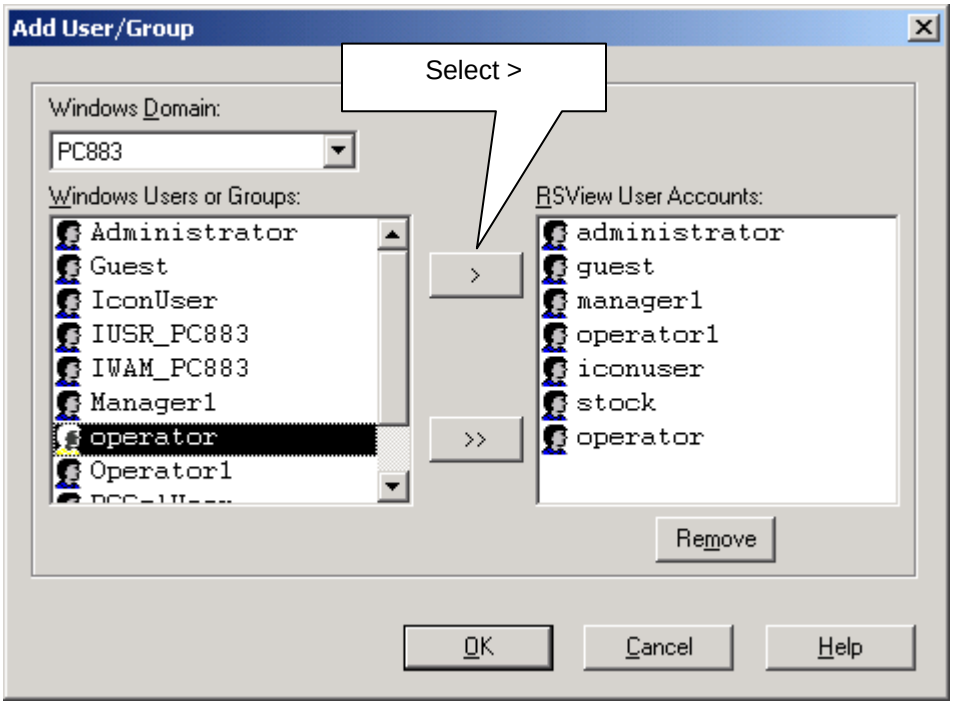
Accessing User Accounts

- Left click on the *Add User / Group* button



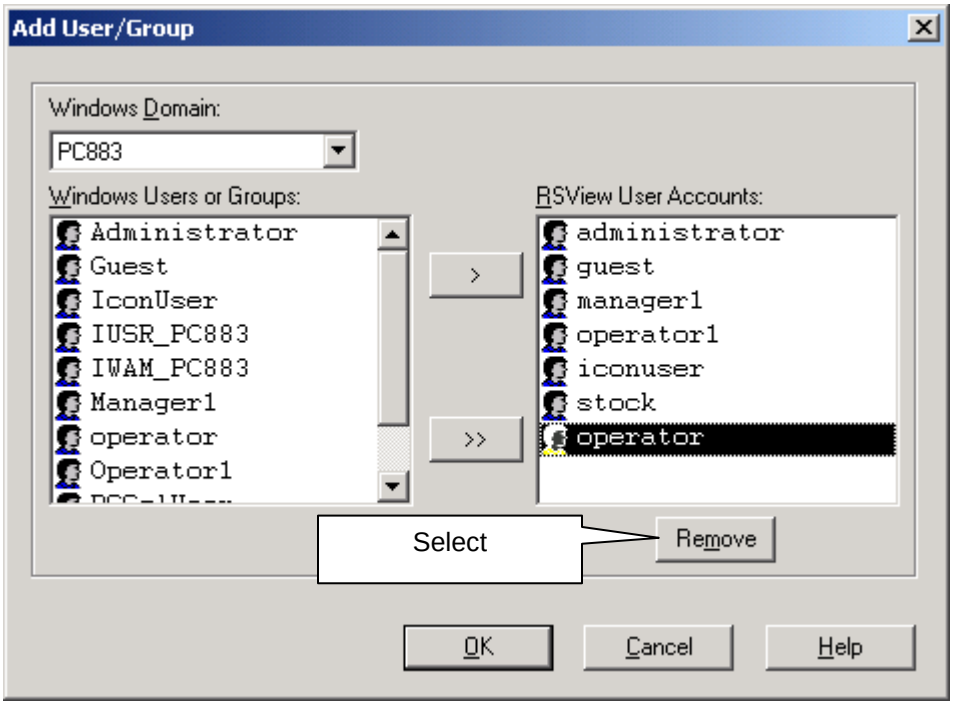
Adding User Accounts

- Select (highlight) the user to be added
- Click the “>” button to add the selected user



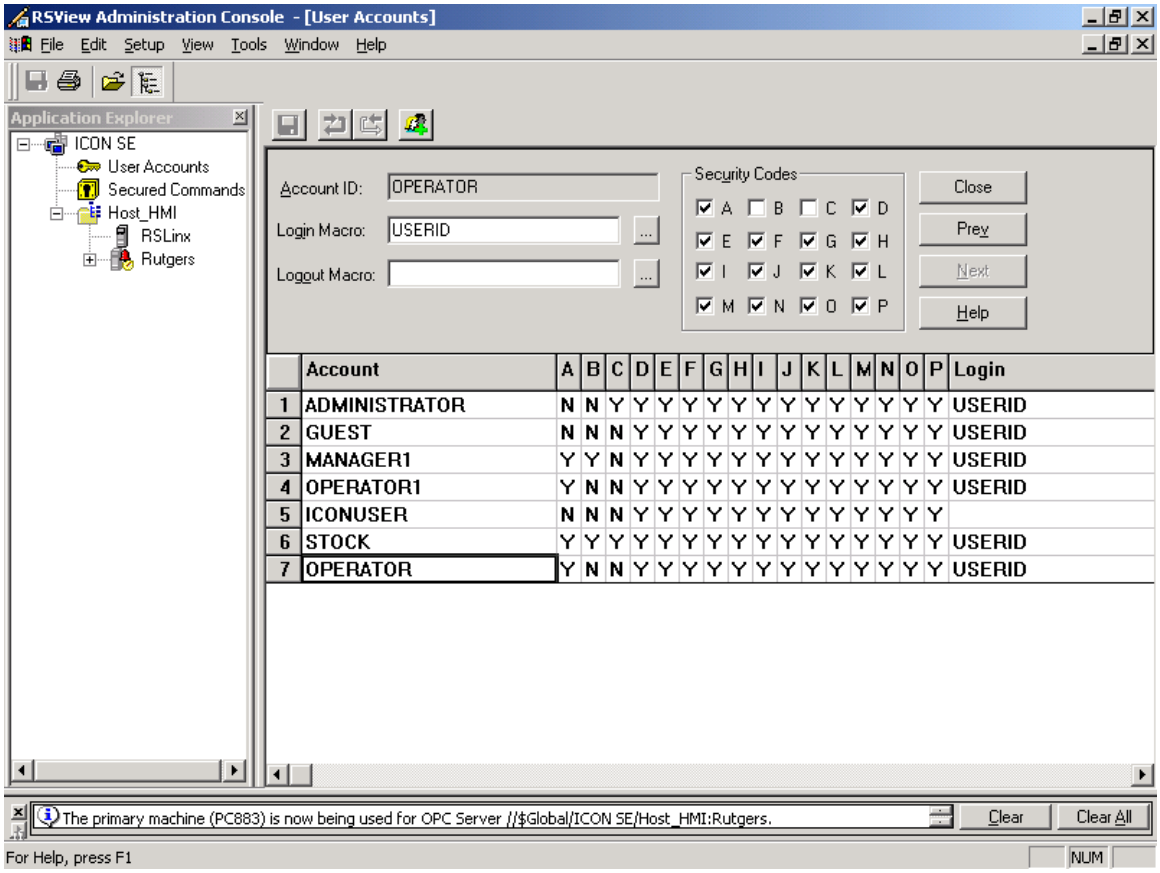
Deleting User Accounts

- Select *RSView User Accounts* to be deleted
- Click *Remove* button



Setting User Privileges

- Select *User Account*
- Check / Uncheck security codes as per note below
- *Save* and *Close* when finished



NOTES:		
Security Level	**Active Codes**	**Setting**
Operators	B & C	set to N
Managers	C	set to N
Administrators	A & B	set to N

SECTION 3 – HOST COMPUTER

a. Software and Hardware Requirements

Before You Begin

Before you begin to work with this system you should be familiar with using a *Personal Computer (PC)*. This manual assumes that you have a working knowledge of a *PC*. If you are not comfortable with the *PC* operation please read the user manual for the *PC* first.

Information for Stand Alone Retort Installations

ICON^{SE} provides operator interactions to all available functions of a STOCK retort. STOCK has developed software applications that are used to generate, store, modify and download specific recipes to *STOCK* Retorts. Additionally, *ICON*^{SE} provides Sterilization Reports that are *accepted by FDA and USDA in lieu of manual records.* This report is automatically collected and printed at the end of each processing run.

NOTES:
The printer should be located in a climate-controlled environment suitable for sensitive electronic components.

Time and Date Management

See *System Administrator* to set time and date.

Hardware Specification

COMPUTER	Allen Bradley 6181 Industrial Computer

Software Specification

Manufacturer	Program / ID	Version
Microsoft	MSSQL SQL Server 2000	Personal Edition
Microsoft	Office XP (Word and Excel)	Small Business Edition
Rockwell	RSView SE Client	2.10
Rockwell	RSView SE Server (25 Display)	2.10
Rockwell	RSSQL Professional1500 TAG	5.0
Rockwell	RS Linx for RSView	2.4 Included w/ Review SE

SECTION 4 - ICON^{SE} STARTUP, SHUT DOWN & LOGIN PROCEDURES

a. Utility Start - Up Procedure

- Turn on
  - Water Supply
  - Main Electrical Service (If shutoff) Follow proper safety procedures.
  - Air Supply – Regulated to 85 psi ±
  - Steam Supply – Regulated to 85 psi minimum

b. Retort Power-Up Procedure

- Power to Retort
  - Turn on power switch on Front Panel

c. Software Start - Up Procedure

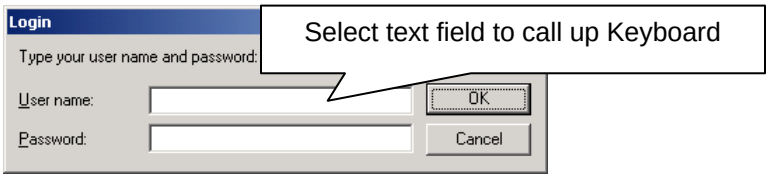
- Power to Human Machine Interface (HMI)
  - Turn on power to UPS Battery back up inside of front panel
- Wait for Operating system software to load

d. Software Reboot Procedure

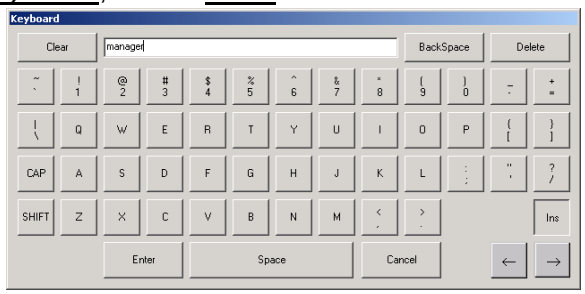
- Exit windows per standard Microsoft Windows procedure: Windows Menu *Start* → *Shut Down* → *Shut Down*
- Power off UPS Battery back up inside of front panel: Turn on UPS Battery back up

e. Login Procedure

- Appropriate system access will be granted based upon security setting
- *Login*– Select button on *Overview Screen* to gain access to ICON ^{SE} system (Fig. 5.1)
  - *User and Password* – Select a field on *Login* prompt, select *OK* after all entries have been made



  - Enter text on *Keyboard*, Select *Enter* button



SECTION 5 - ICON^{SE} HUMAN MACHINE INTERFACE

a. General Information

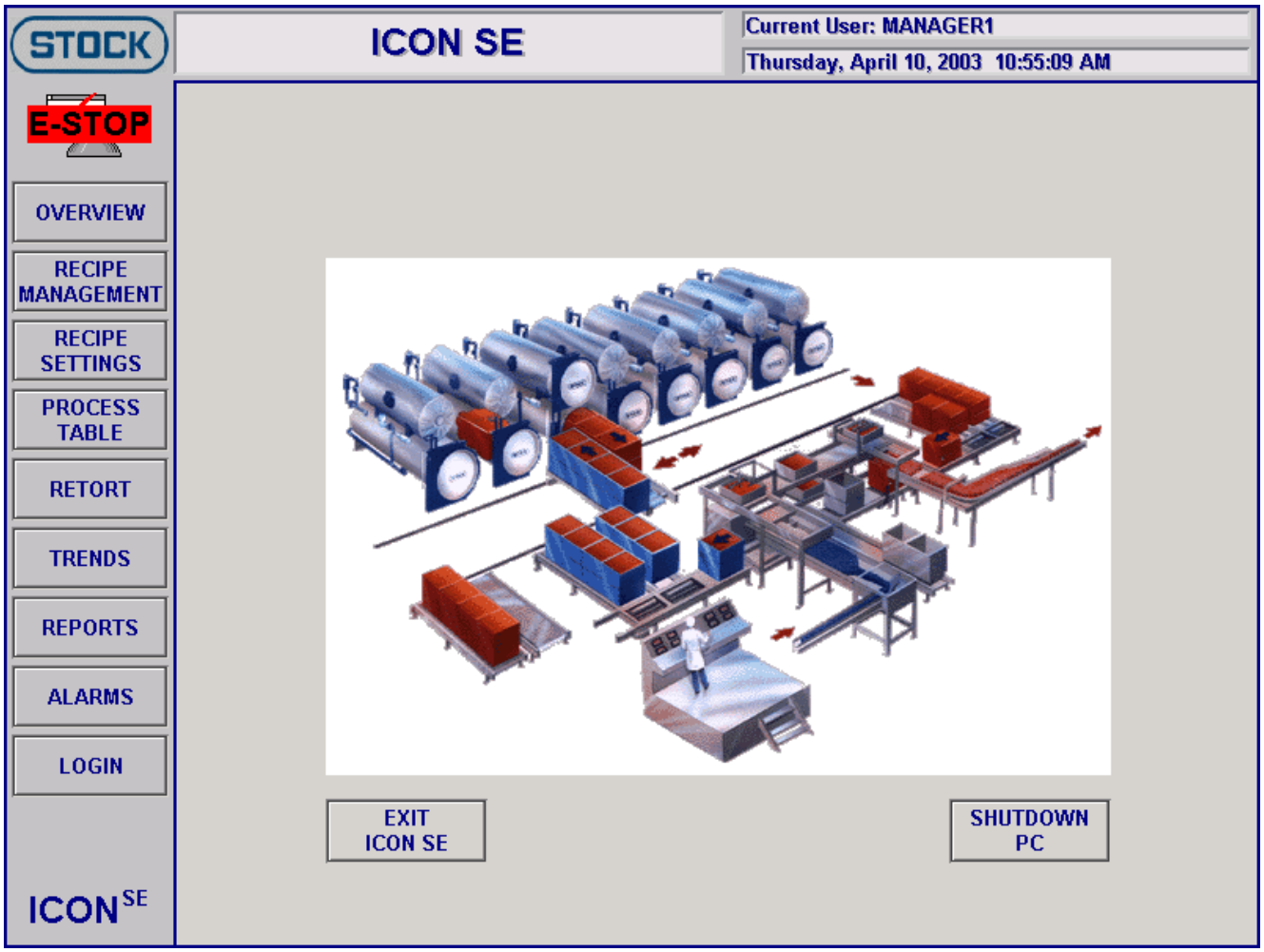
- Retort ***HUMAN MACHINE INTERFACE*** **(*HMI*)** screens are *TOUCH SCREENS*.
- All information is entered on the ***HMI*** screens.
- Toggle buttons, touch fields, Pop-up Key Pads or Keyboards are used to access or input data.
- **DO NOT** use a marking pen or sharp instrument to enter information on the ***HMI*** touch screen as it may be damaged.

b. Interface and Input Screen Examples

- Overview Screen – First HMI screen to appear, contains buttons to shut down the applications
- Main Menu – Will appear on most screens and is located on the left hand side of screens.
- Key Board – Use for Text inputs
- Key Pad – Use for Numerical inputs
- Recipe Management – Use to set recipe specific parameters.
- Step Management – Used to Copy Move or Delete steps
- Recipe Settings – Sets parameters for use in **all recipes** within a *Operation Mode*
- Select Product Code – Displays a list of recipe codes to chose from
- Setpoint Input - For modification of setpoint data.
- Report Generation Form; Select Batch ID – User generated reports from a list of processes.
- Login Screen – To Logon user to system
- Product Registration – Assigns the product a place in the SQL Server Database
- Update Confirmation – Used to verify the recipe description prior to saving changes.
- Custom Table Settings – For process variable information (Process Authority Input only) Contains the range of acceptable Initial Temperatures and Retort Temperatures used to calculate process time.
- String Input – To enter a text description for the recipe. Part of the registration process
- Download Confirmation – Verification that the user wants to *Download* recipe to HOST PC for use in **NEXT COOK**
- Retort Screen – Real time display of Retort: piping, valves, temperatures, pressures, level sensors, rotation, set point & actual values, holds, pauses, step description, user input prompts and process times.
- Start Confirmation – Allows operator chance to wait before process begins and confirm information prior to process startup.
- IT Configuration – For setting the prompt for IT (Initial Temperature)
- Pause Confirmation – Confirms operator wants to “Pause” process
- Remove Pause & Continue - Confirms that operator wants to continue process
- Hold Confirmation – Confirms operator wants to “Hold” process
- Remove Hold Confirmation - Confirmation that operator wants to continue process
- Abort Confirmation - Confirms operator wants to “Abort” process
- User Input Confirmation – Prompts for MIG, Chart, Pressure & Water Level
- Alarm Summary - Operator access to view & acknowledge presence of alarms.
- Operational Range of Set Points and Fields – Indicates the ranges for values for specific feilds
- Input Validation – Allows operator to review User Input Entries before saving
- Trending – Shows real time data for Process Vessel & Storage Vessel: Temperature and Pressure

Overview Screen (Fig. 5.1)

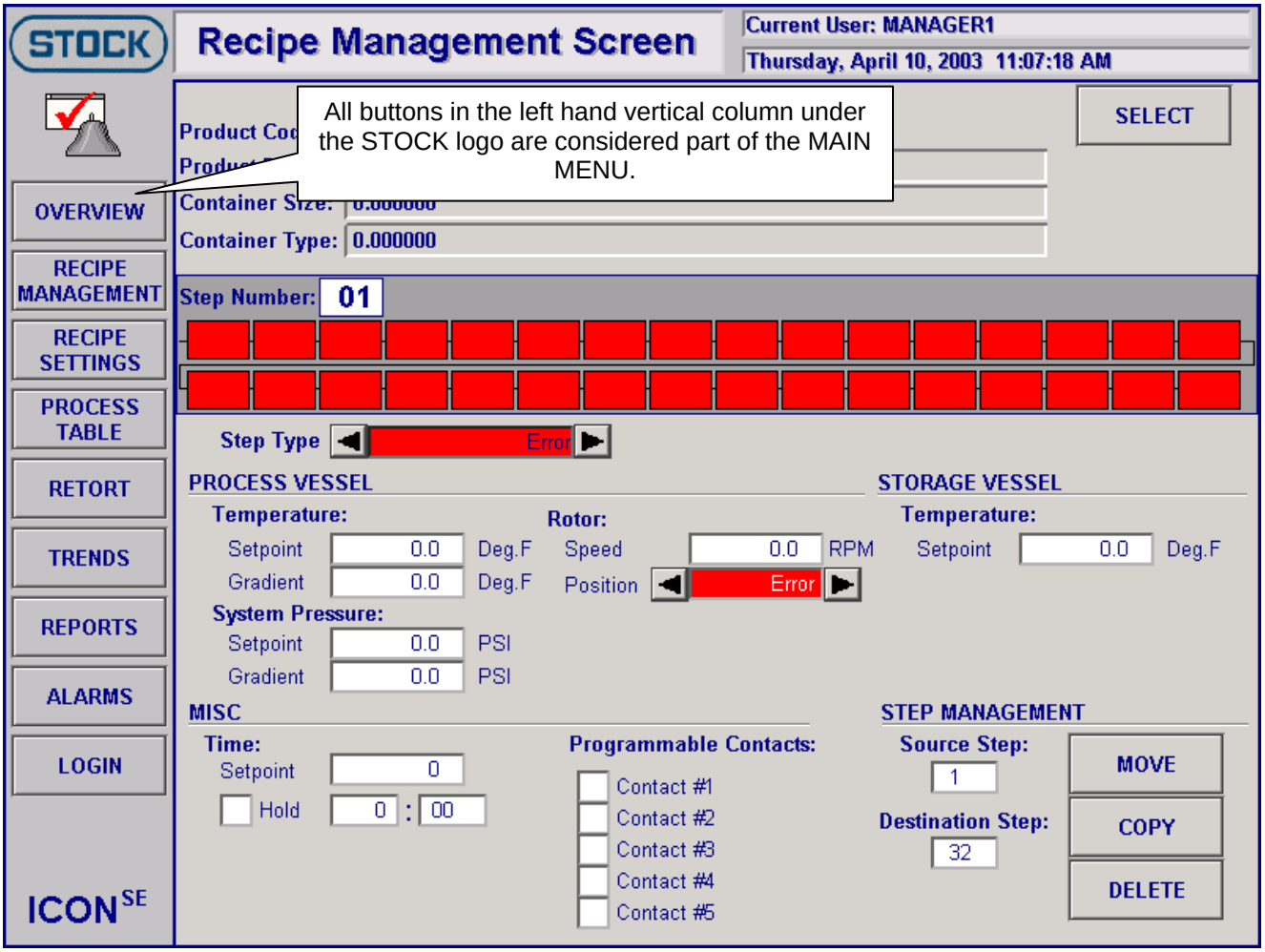
- Used to access the various operating features of the *ICON*^{SE} system.



Button	Function
Exit ICON SE	Exit ICON ^{SE} shuts down HMI screen and program – Process will still run
Shutdown PC	Shut Down PC - Logs Out of system

Main Menu (Fig. 5.2)

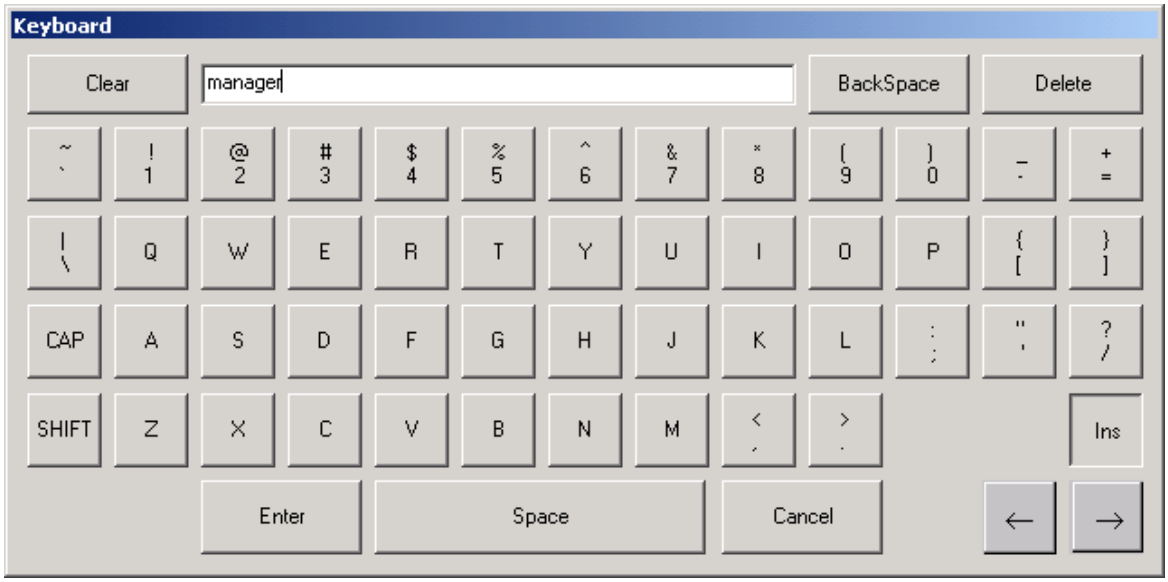
- Used to access the various operating features of the *ICON*^{SE} system.



Field or Button	Function
Overview	Access to Main Menu, Exit ICON ^{SE} & Shut Down PC - Log Out buttons
Recipe Management	Used to set parameters used in a specific recipe
Recipe Settings	Used to set parameters used in all recipes (Global Settings)
Retort	Shows the operational screen used during the run
Trends	Graphical representation of key operational parameters on a real time basis during process
Reports	Used for accessing the various reports available
Alarms	Access to the list of current alarms
Login	Required before any changes can be made

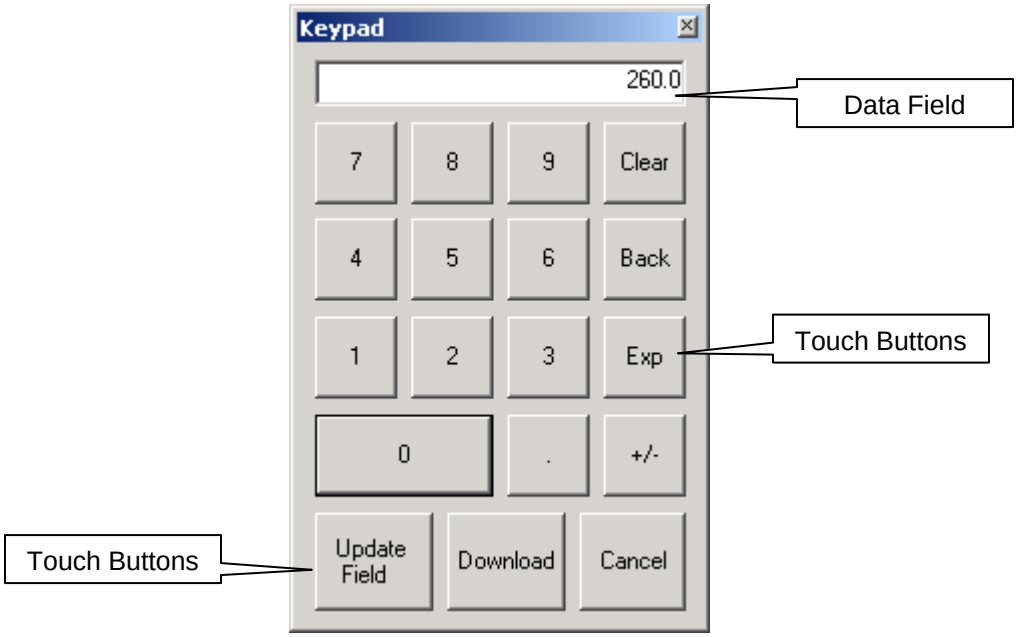
Keyboard (Fig. 5.3)

- Used for text inputs: ex. User names and passwords



Key Pad (Fig 5.4)

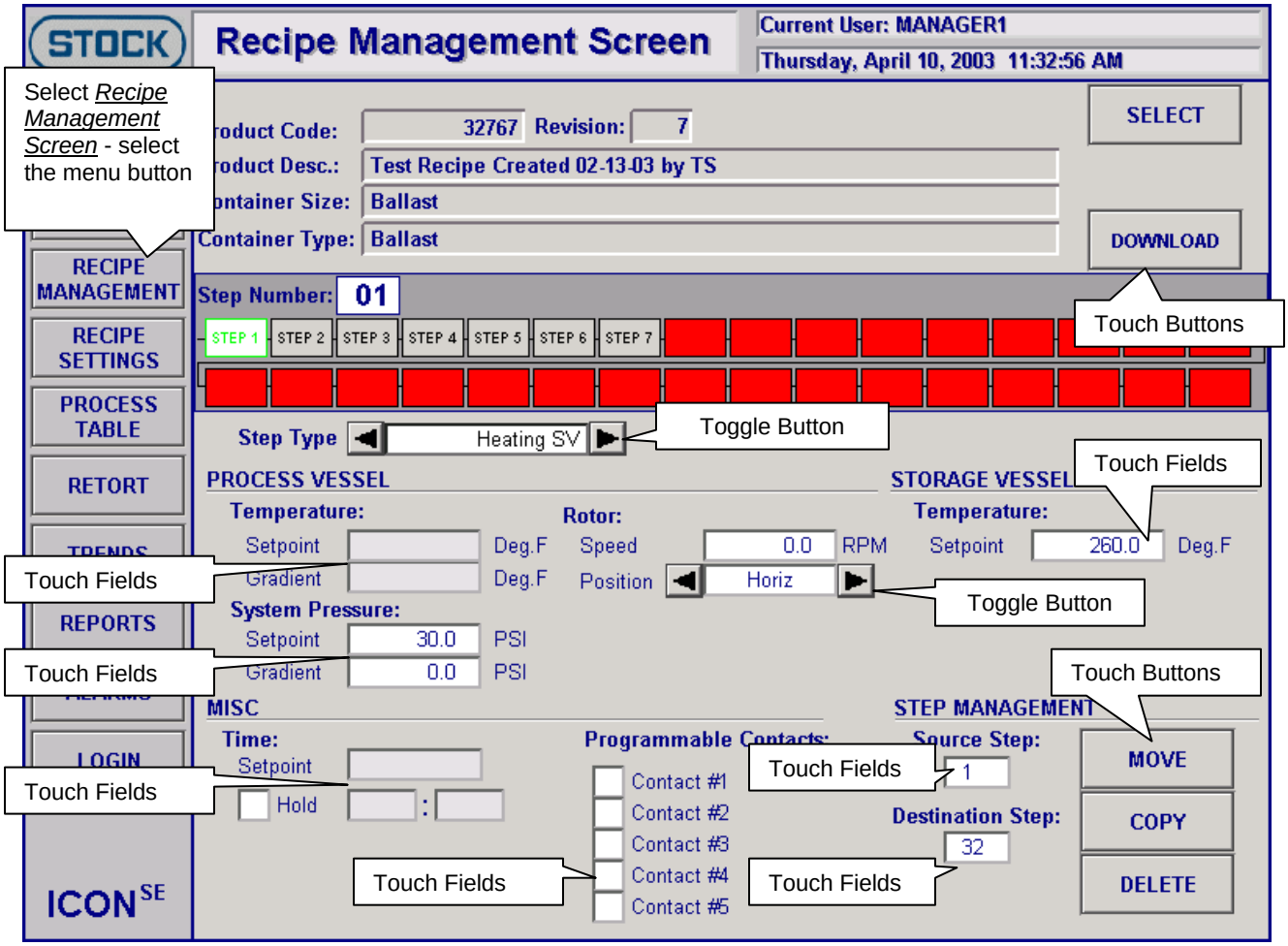
- Used to make numerical inputs onto the *ICON*^{SE} user ***HMI*** interface screens.
- Depending on what information is required the key pad appearance may change slightly.



Button	Function
ESC	Returns to previous screen
Back	Deletes last entry
Clear	Deletes entire entry
Accept	Enters data into program

Recipe Management Screen (Fig 5.5)

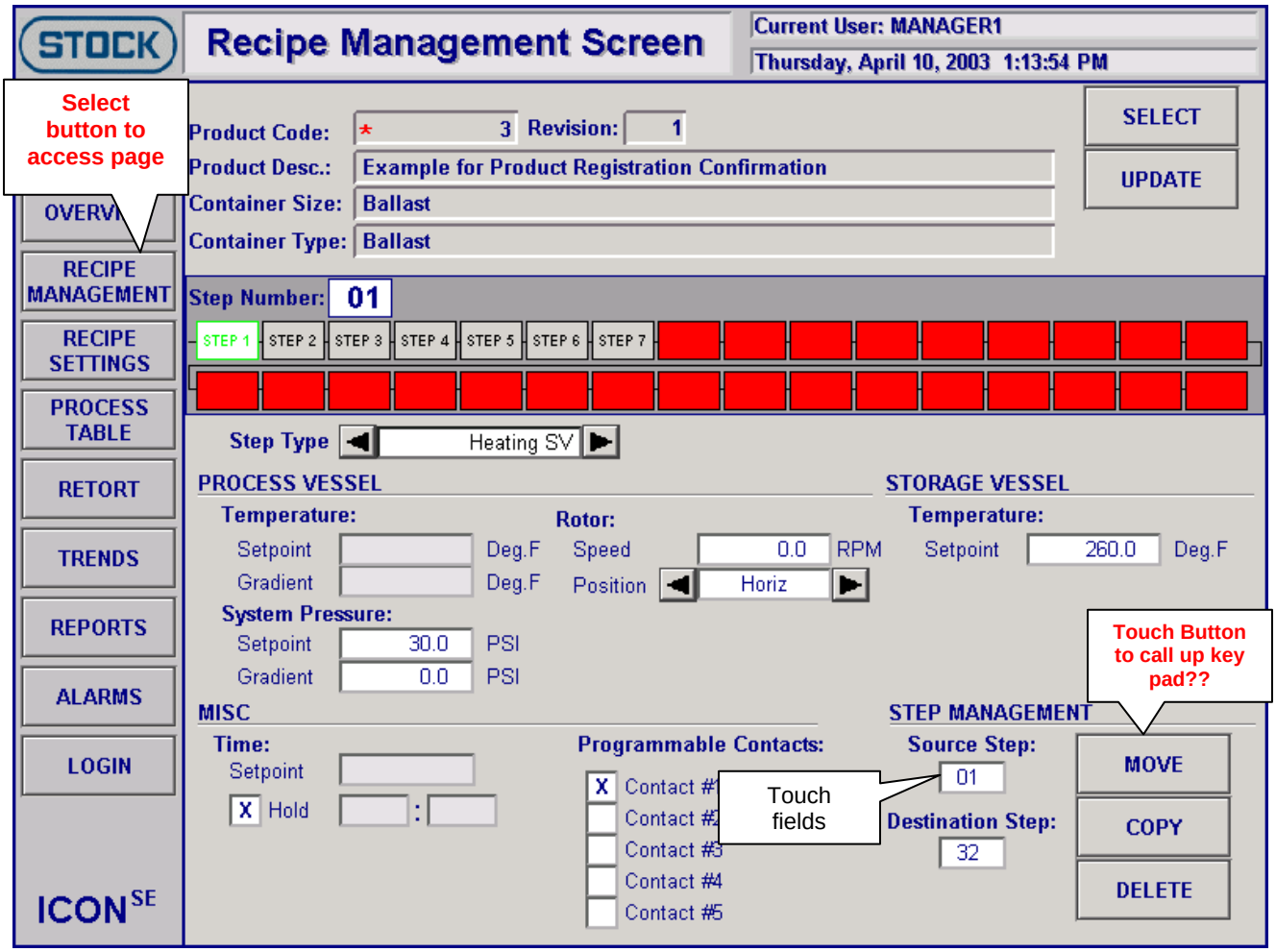
- Set information for any given recipe step to suit processing needs.
- Access by selecting the *Recipe Management* button on left hand *Main Menu*.
- Change information by use of *toggle buttons* or *touch fields*.



Field or Button	Function
Select Button	Selects a list of recipes to choose from
Recipe Settings	Used to set parameters used in all recipes (Global Settings)
Registration	Assigns the new recipe a position in the SQL Server Database
Step Type	Indicates what processing step is located on a particular step number: S1, S2, S3, C1 …etc
Temperature / Pressure Set Points	Temperature or pressure set point for the step
Gradient	Positive rate of temperature or pressure change per minute during the set point time
Misc. Time Set point	Total time of the step entered in seconds (Minutes and Seconds will automatically calculate
Rotor Speed	RPM from 7 to 30
Rotor Position	A = Horizontal, B = Custom, C = Custom
Hold	Places a hold on the process at the end of the step. A user entry is required to continue.
Step Management	Used to Move, Copy or Delete a step
Source Step	Is the step that is chosen for Moving, Copying or Deletion
Destination Step	Is the step that is chosen for information to be Moved to, Copied to
Programmable Contacts	Used for adding devices to the operational control panel.

Step Management (Fig. 5.6)

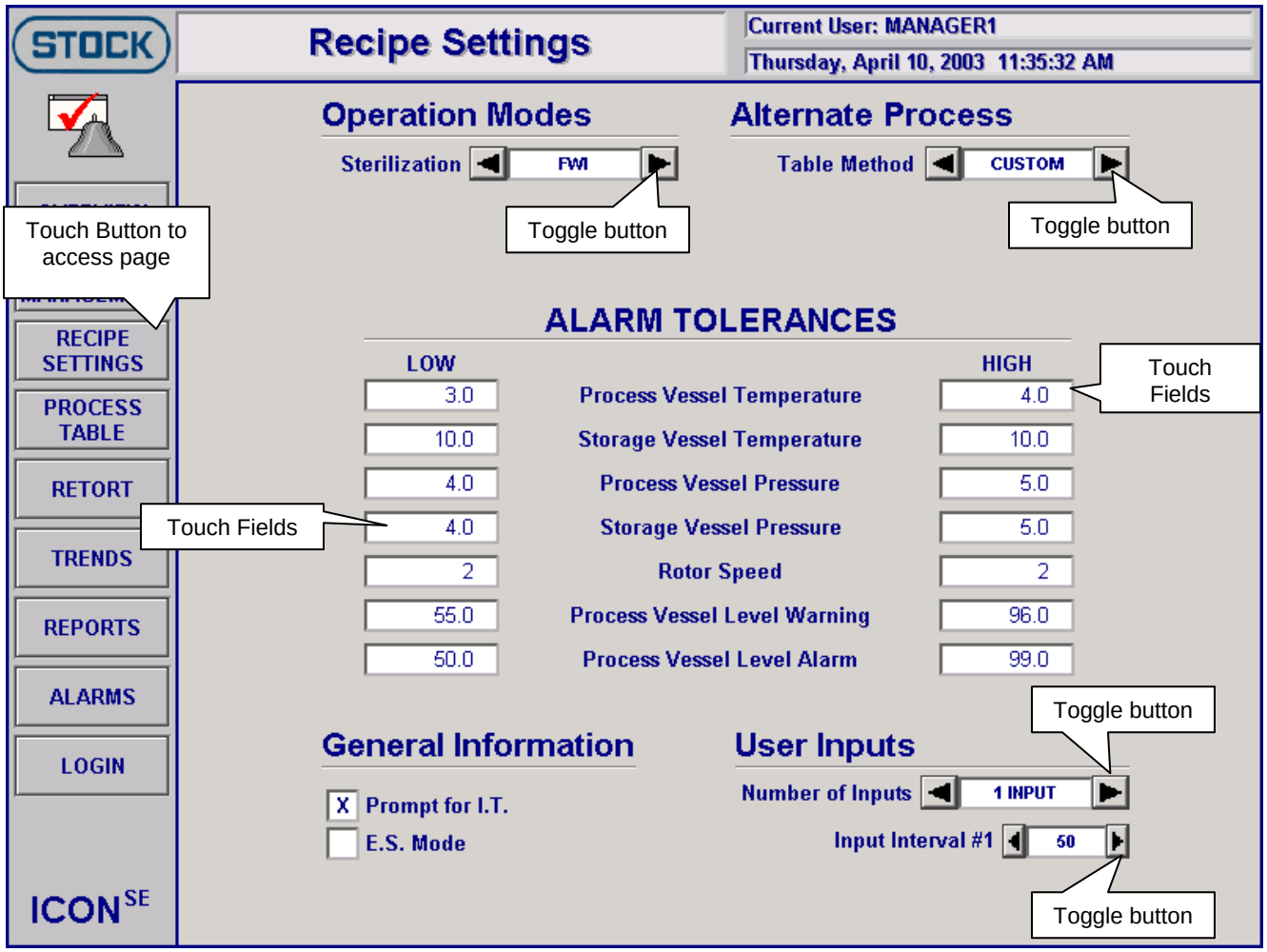
- Access function - select *Recipe Management* button on left hand *Main Menu*
- *Copy*, *Move* or *Delete* – Select button to perform function for any given recipe step.
- *Source Step* - step to *Copy*, *Move* or *Delete*.
- *Destination Step* - location desired for the Copied or Moved step to be pasted to.
- *Delete* - removes the step.
  - Change information by use of *Key Pad* pop up screen



Field or Button	Function
Move Button	Moves data from *Source Step* to *Destination Step*
Copy Button	Copies data from *Source Step* to *Destination Step*
Delete Button	Deletes step that is indicated in *Source Step* box
Source Step	Is the step that is chosen for *Moving, Copying or Deleting*
Destination Step	Is the step that is chosen for information to be Moved to or Copied to

Recipe Settings (Fig. 5.7)

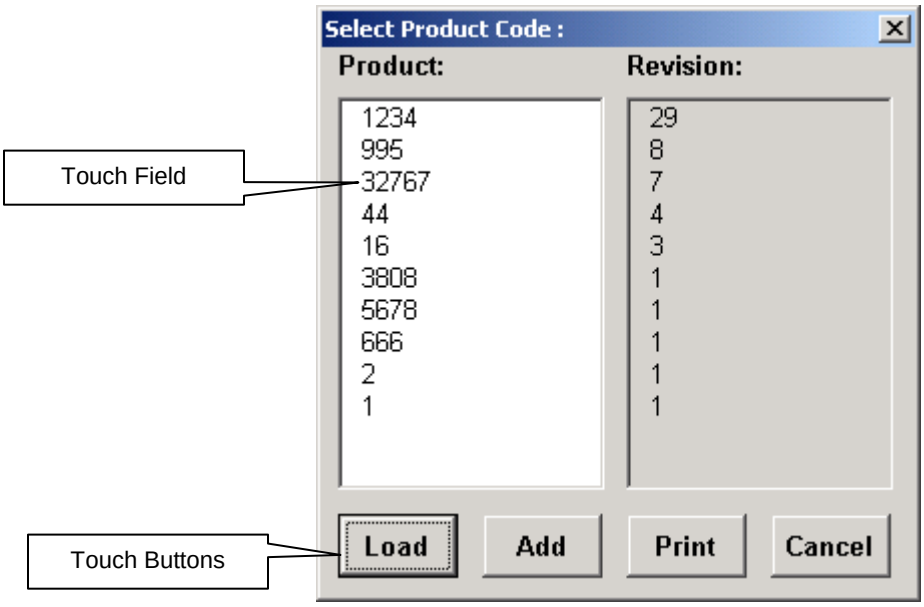
- Access by selecting the *Recipe Settings* button on left hand main menu
- All recipes created in a specific *Operation Mode* use this information. (Ex: *FWI* is Full Water Immersion)
- Change information on screen by use of toggle buttons or key pads / touch fields
- *Alarm Tolerances* are to be set in conjunction with a **Process Authority** and can be used as the basis for deviation analysis



Field or Button	Function
Sterilization (Operation Mode)	Sets type of process, FWI, Steam, Spray (Not all processes will be active, this is customer dependant)
Table Method	Custom (generated by the Process Authority
Table	To select a table
Alarm Tolerances	Sets high and low values for selected parameters
Number of Inputs	Defines number of times a prompt for information appears
Input Interval	Defines interval at which a prompt for information appears
Prompt for IT	Places a hold on process until operator enters a value
ES Mode	Activates the *Energy Saving Mode* of operation (Optional)
Input Interval	Defines interval at which a prompt for information appears

Select Product Code (Fig. 558)

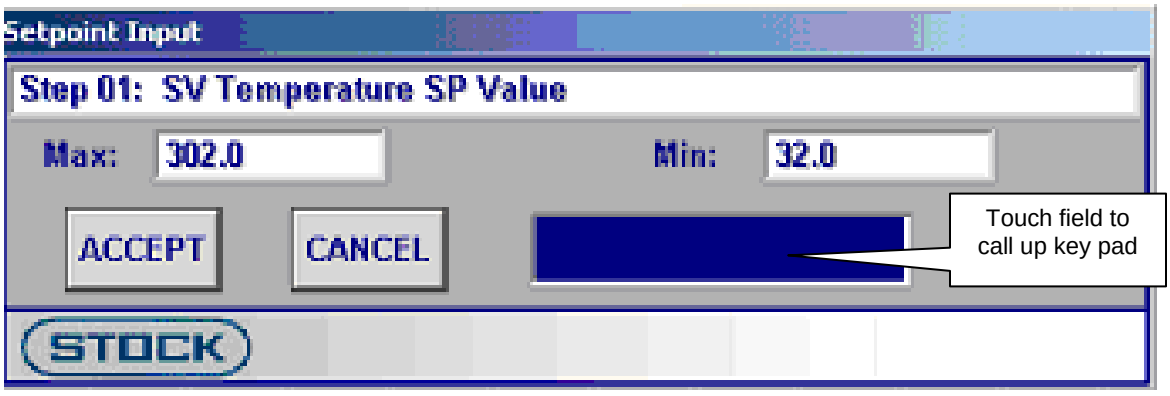
- Access screen by Selecting *Select* button in upper right hand corner of *Recipe Management Screen*
- Select *Product* number on screen to access information
- In *Add* mode enter new numbers required by use of *key pad.*
- *Key Pad* is activated by Selecting the *Add* button at the bottom of the screen



Button	Function
Load	Puts recipe into controller for use or modification
Add	To create new recipe in database for future use or modification
Print	To print recipe user selects from list
Cancel	Exits Screen

Set point Input (Fig. 5.9)

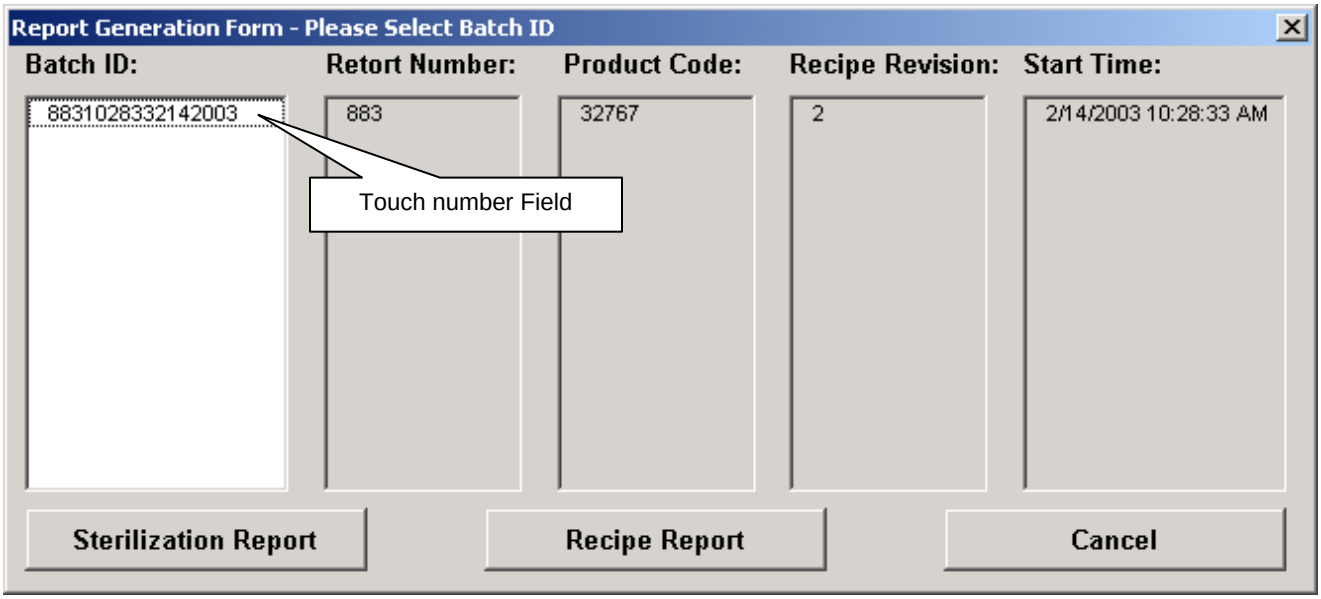
- Access by selecting a *touch field* on *Recipe Management Screen*
- Set point information is changed by use of the *key pad*



Button	Function
Accept	Enters the data into the recipe
Cancel	Exits Screen

Report Generation Form – Please Select Batch ID (Fig. 5.10)

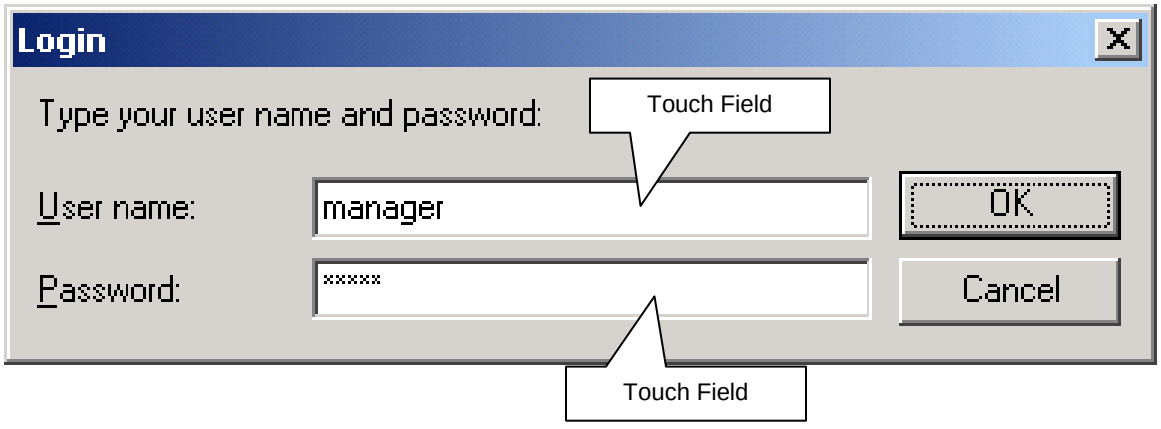
- Report generation for cooks that are on the *Batch ID* list.
- Cooks are generated by selecting the desired *Batch ID* then selecting the reporting option



Button	Function
Batch ID	Touch field that is used to select the Batch ID# to be reported
Sterilization Report	Allows sterilization record to be printed for a chosen Batch ID
Recipe Report	Allows recipe record to be printed for a chosen Batch ID

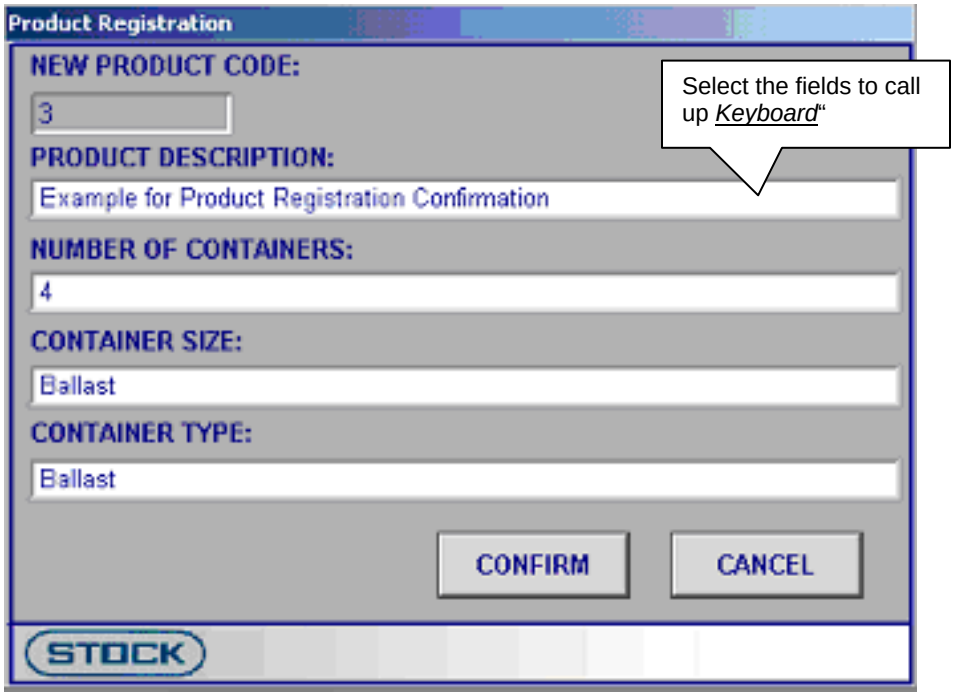
Login (Fig. 5.11)

- Required before permanent changes to data will be granted
- Select a touch field on the screen and enter information on *Key Board.* (Fig 5.3)



Product Registration (Fig. 5.12)

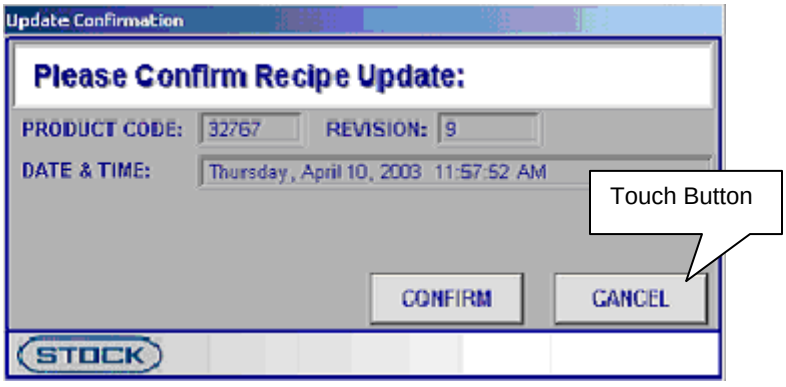
- Used to confirm recipe and add information specific to the Product Code in text boxes
- Select a touch field on the screen and enter information on *Key Board.* (Fig 5.3)



Field or Button	Function
Confirm	Allows data to be entered into the recipe
Cancel	Exits Screen
Text Fields	Dialog box filled in by keyboard

Update confirmation (Fig. 5.13)

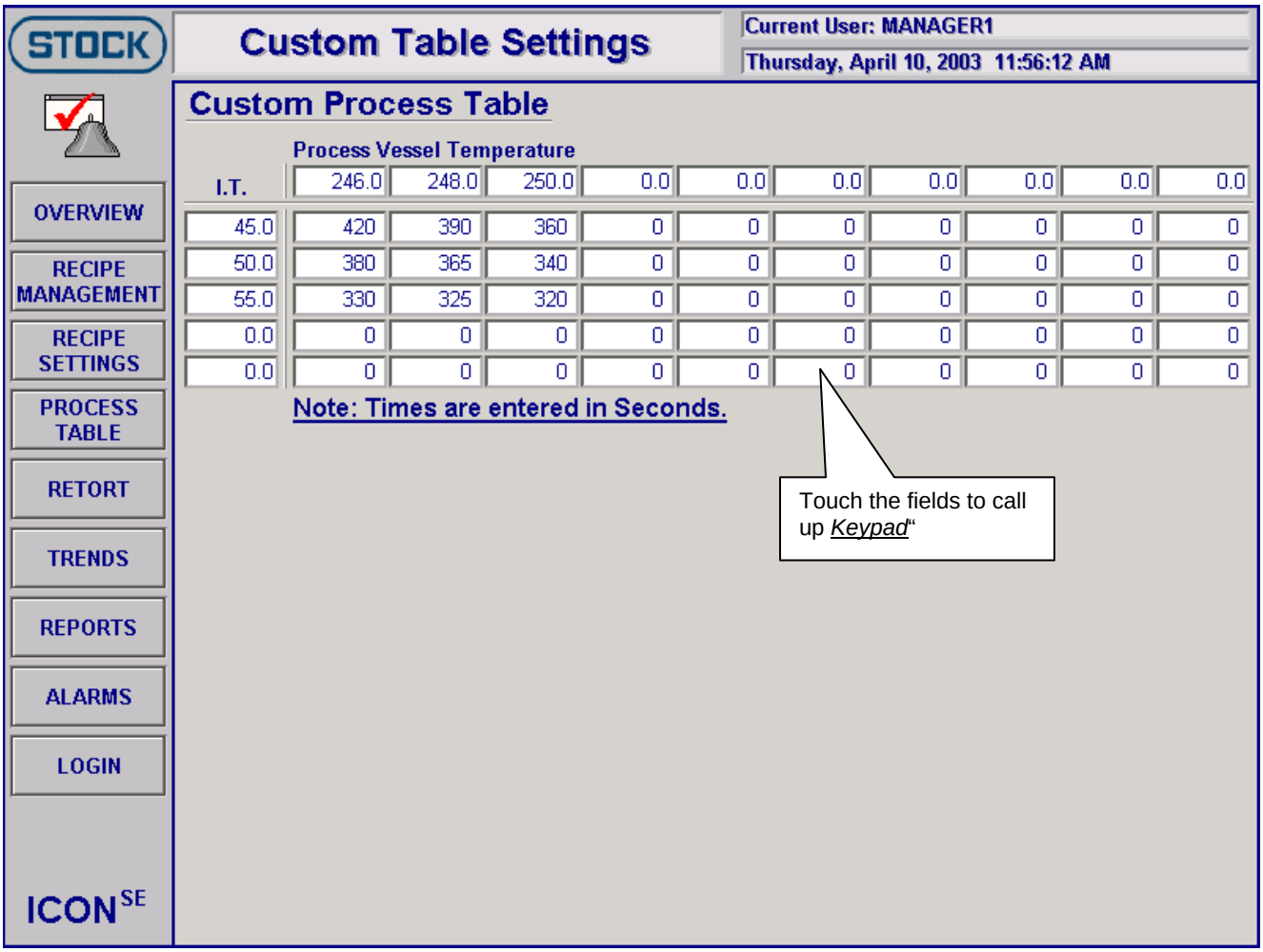
- Used to confirm *Product Code* and *Revision* selected for updating is correct



Button	Function
Confirm	Allows data to be entered into the recipe
Cancel	Exits Screen

Custom Table Settings (Fig. 5.14)

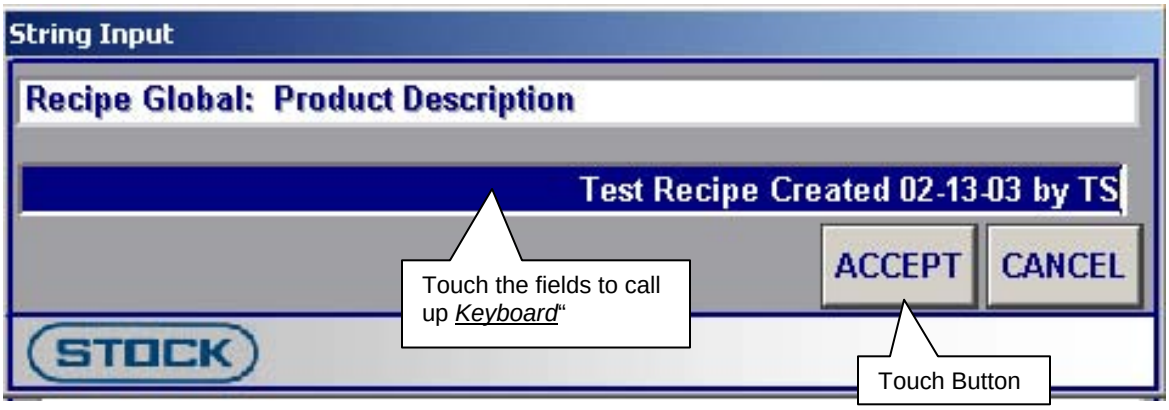
- Used to set process variables for retort temperature and Initial temperature
- Manual entry fields data is accessed by touch field and key pad



NOTE:
This is CRITICAL part of the thermal process do not change these values without consulting a Thermal Process Authority

String Input (Fig. 5.15)

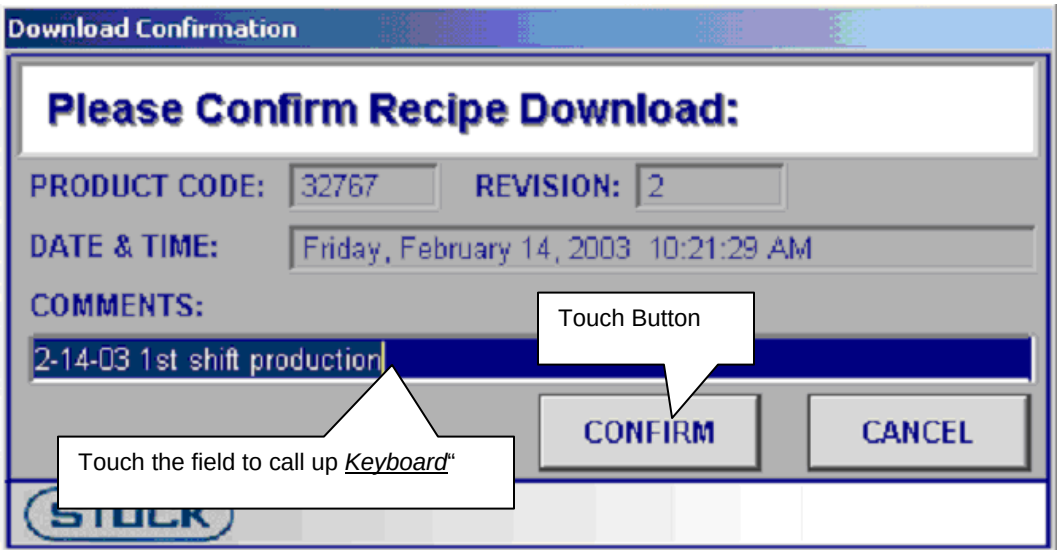
- Text box for *Product Description*
- Found through *Recipe Button* on main menu



Field or Button	Function
Accept	Enters text into the Global Recipe Setting page
cancel	Quits function and exits screen
Comments	Dialog box filled in by keyboard

Download Confirmation (Fig. 5.16)

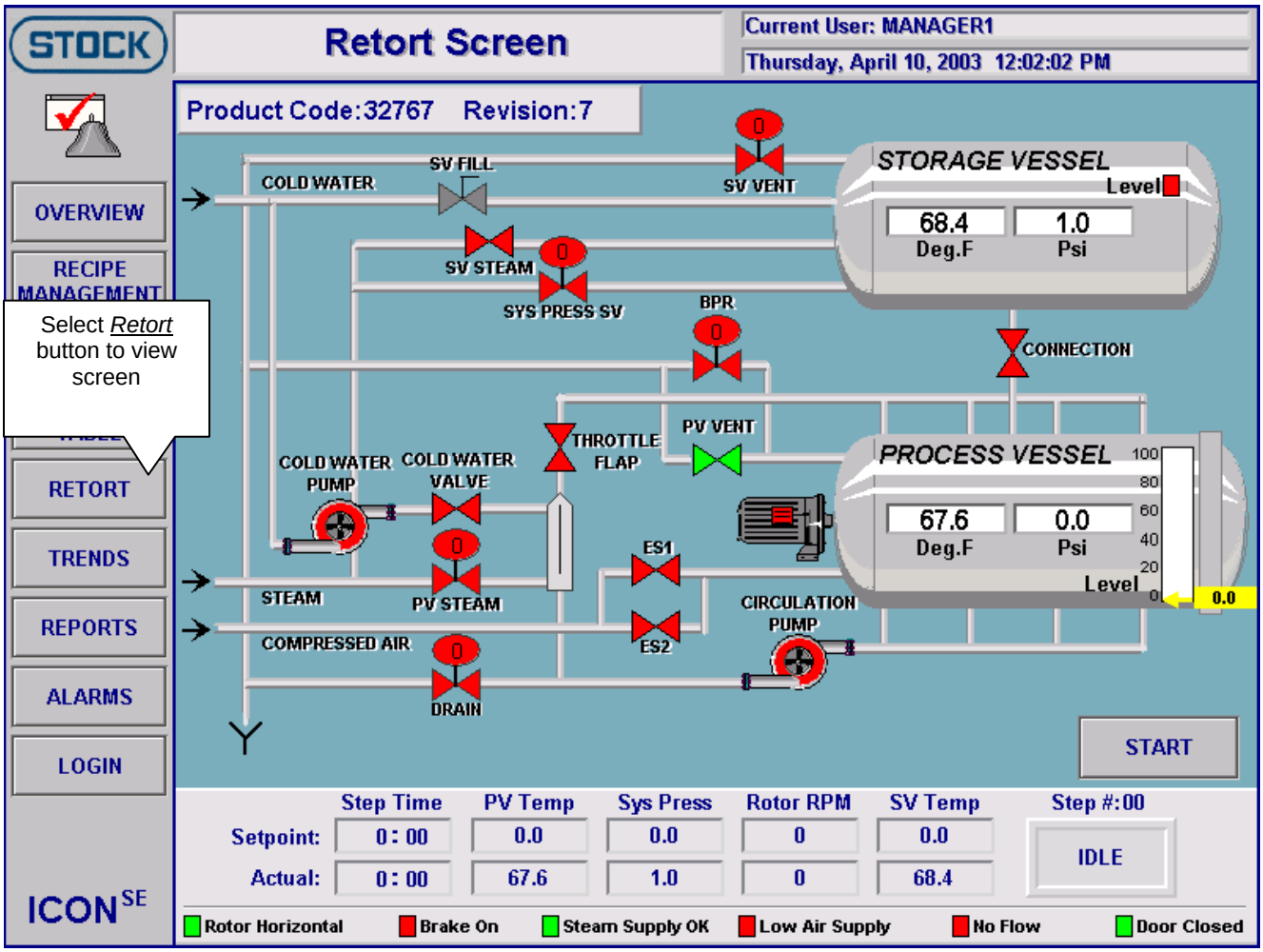
- Confirmation of the recipe to be downloaded and comments if desired.



Field or Button	Function
Confirm	Confirm the recipe is the correct one to change
Cancel	Exits Screen
Comments	Dialog box filled in by keyboard

Retort Screen (Fig. 5.17)

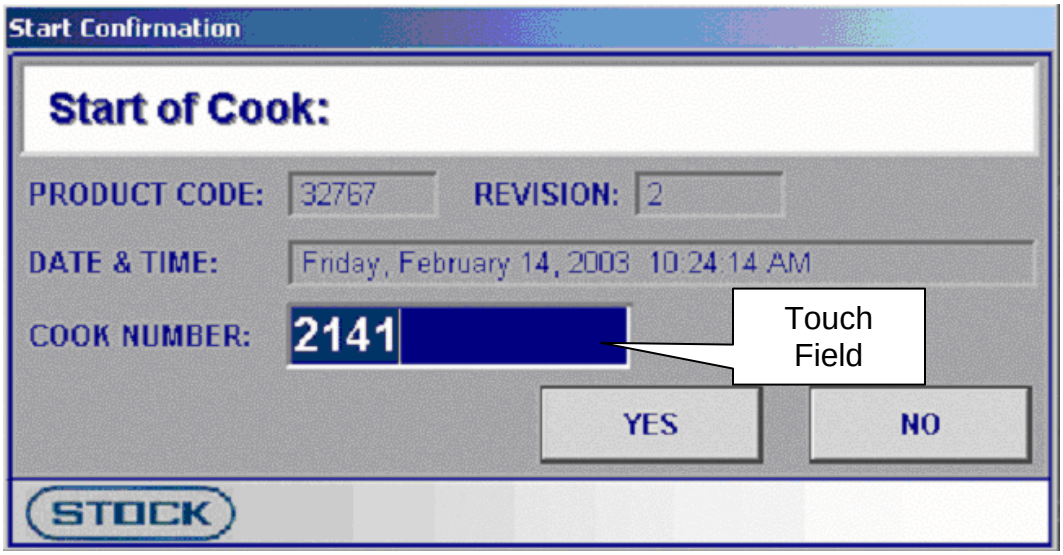
- This is the operational screen for the *ICON*^{SE} controller.
- The screen may change appearance as processing steps are completed
- Analog valves and level indicators indicate the % open on the display
- Digital Valves and motors are on or off
- The entire process is monitored from this screen
  - Valves, pumps, temperatures & pressures (set points & actual), water level, step time, Rotor Position, Water Supply, Brake, Steam Supply, No Flow Warning, Door Closed and RPM



Button	Function
Start	Begin process

Start Confirmation (Fig. 5.18)

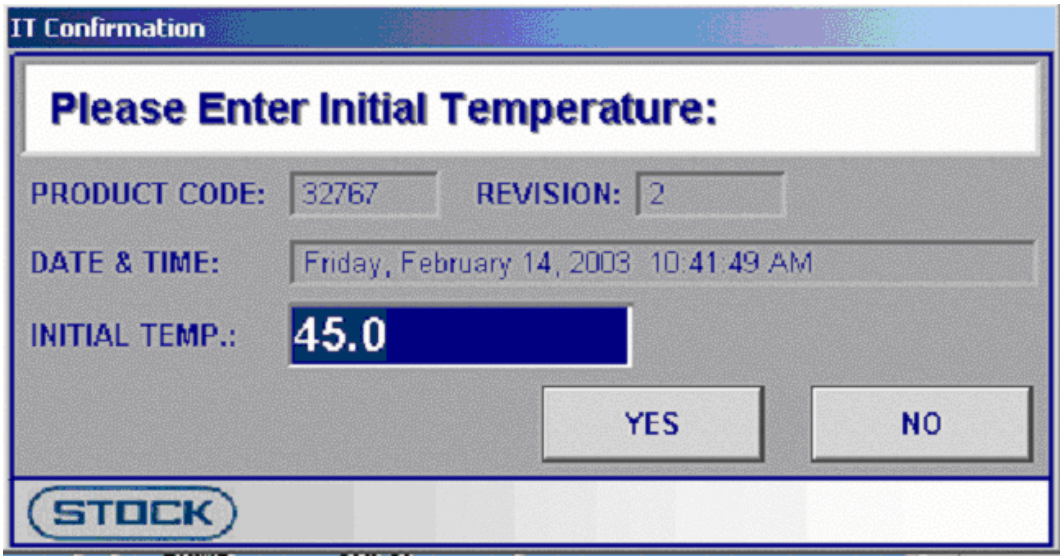
- Prompt for confirmation that the displayed cook information is correct and entry of cook number



Field or Button	Function
Cook Number	To assign a reference number to a specific cook

IT Configuration (Fig. 5.19)

- Setting the prompt for IT (Initial Temperature) found in *Recipe Settings*
- If selected IT must be entered before the process can begin



Field or Button	Function
Initial Temp	Value the *Process Tables* references to set process time

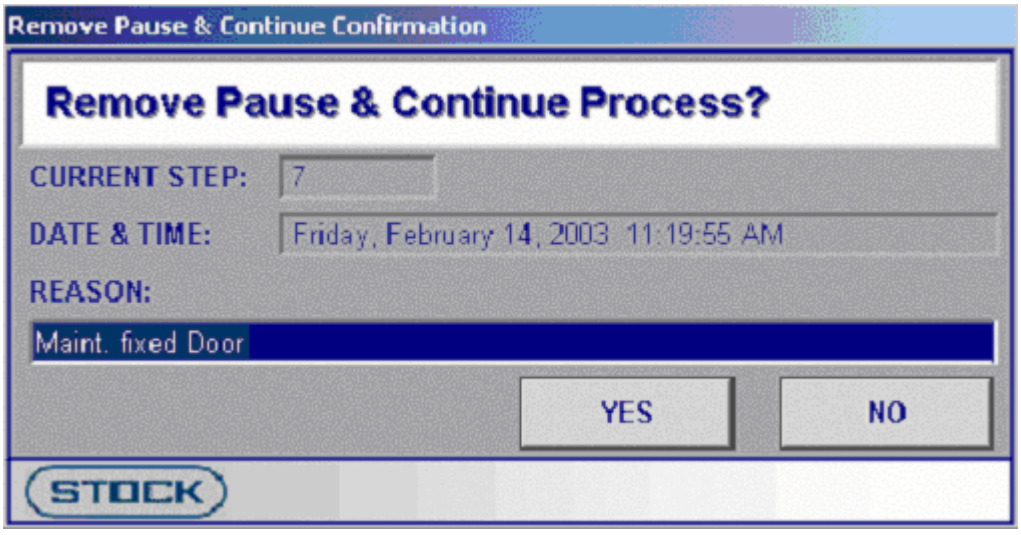
Pause Confirmation (Fig. 5.20)

- Prompts for confirmation that the operator wants to pause the process
- Pause stops the process and returns all pumps and valves to safe (closed) condition
- Pause can be activated at any time during the process

Field or Button	Function
Reason	To assign text to explain cause of event

Remove Pause & Continue Process (Fig. 5.21)

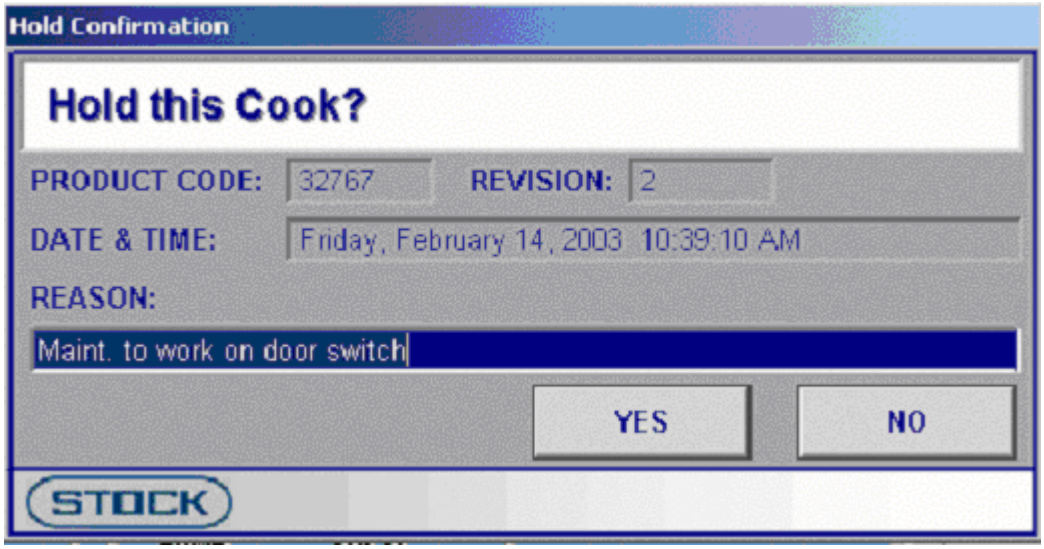
- Resumes the process from the point that the *Pause* was entered.
- Restarts pumps, resets valves to run positions and finishes any remaining time,
- Prompts for confirmation that the operator wants to continue the process
  - Text can be added in the *"Reason"* dialog box via *Keyboard* screen (fig 5.3)



Field	Function
Reason	To assign text to explain event

Hold Confirmation (Fig. 5.22)

- Prompt for confirmation that the operator wants to place a hold in the process
- *Hold* keeps the process in the current step indefinitely & can be placed at any point in the process
- Text can be added in the *"Reason"* dialog box



Field or Button	Function
Reason	To assign text to explain

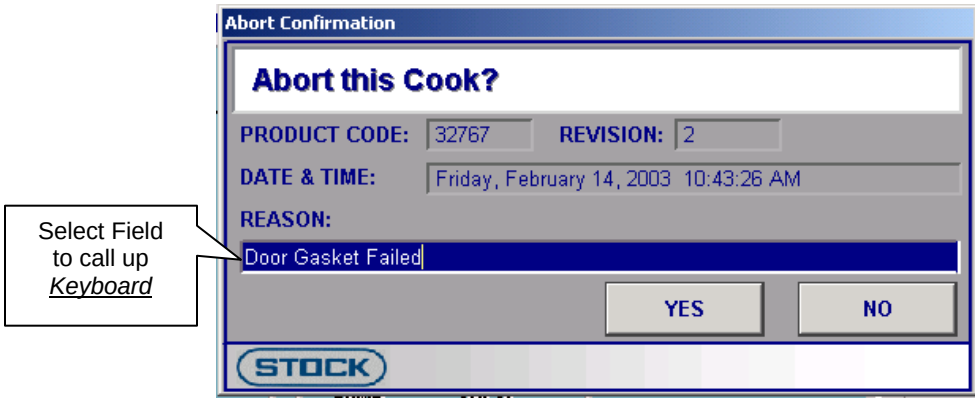
Remove Hold Confirmation (Fig. 5.23)

- Prompts for confirmation that the operator wants to remove the *Hold* and finish remaining time in the process step.
- Text can be added in the *"Reason"* dialog box via *Keyboard* screen
- To remove hold select *Yes*

Field or Button	Function
Reason	To assign text to explain

Abort Confirmation (Fig. 5.24)

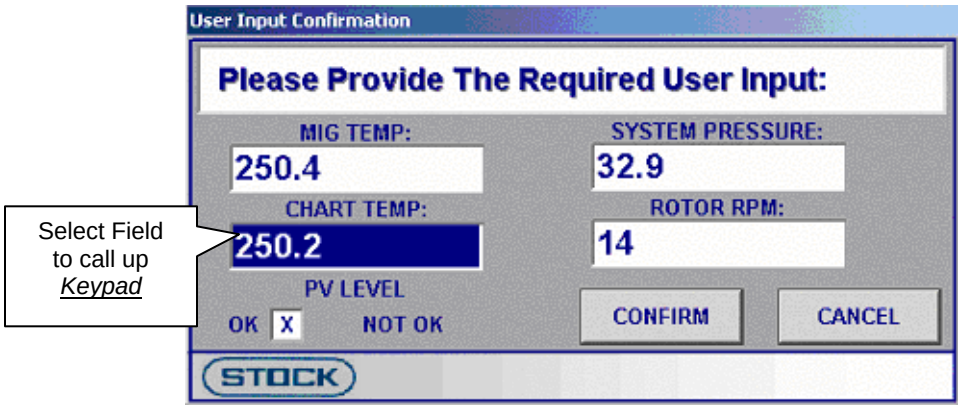
- This stops the process and returns the valves to a safe condition.
- Prompts for confirmation that the operator wants to *Abort* the process
- Text can be added in the *"Reason"* dialog box via *Keyboard* screen
- Select *Yes* button to *Abort* cook



Field	Function
Reason	To assign text to explain

User Input Confirmation (Fig. 5.25)

- **Input will be used to reference process tables to recalculate process time if MIG reading is below process temperature.**
- Signaled by alarms and prompts for operator input and confirmation of MIG, Chart Temp, System Pressure, RPM, PV Level.
- Process will remain in SIII until inputs are entered,
- User and password will be verified before data entry

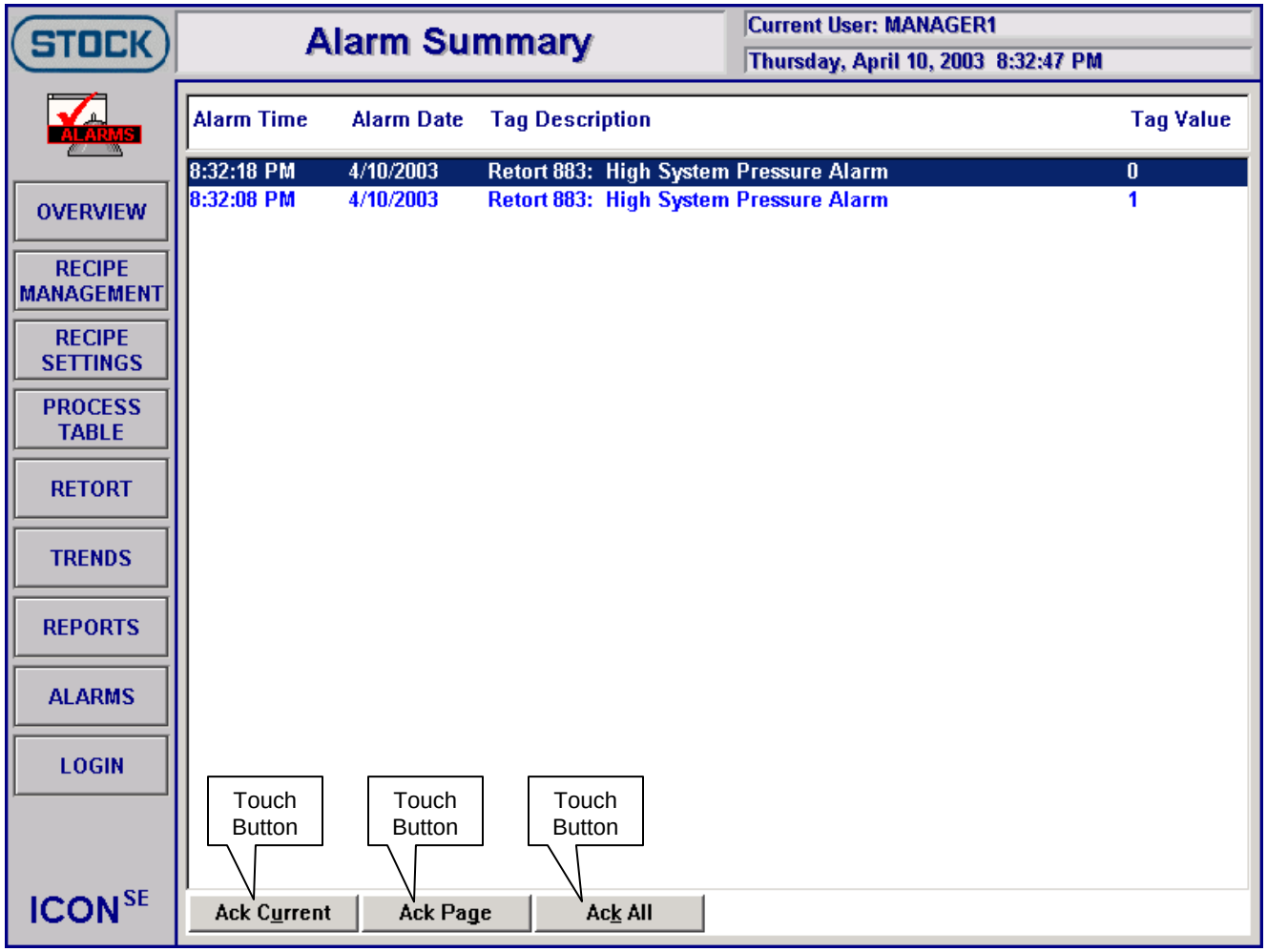


Field or Button	Function
MIG Temp field	Enter in reading for MIG
Chart Temp field	Enter in reading Chart
System Pressure field	Enter in reading System Pressure
Rotor RPM field	Enter in reading for rotation RPM
PV Level field	Water level in process vessel
Confirm button	Acknowledges the readings are correct

Note:
MIG reading entered must be higher than chart reading. An *Input Validation* screen appears for confirmation of the entered readings. See manager if condition exists

Alarm Summary (Fig. 5.26)

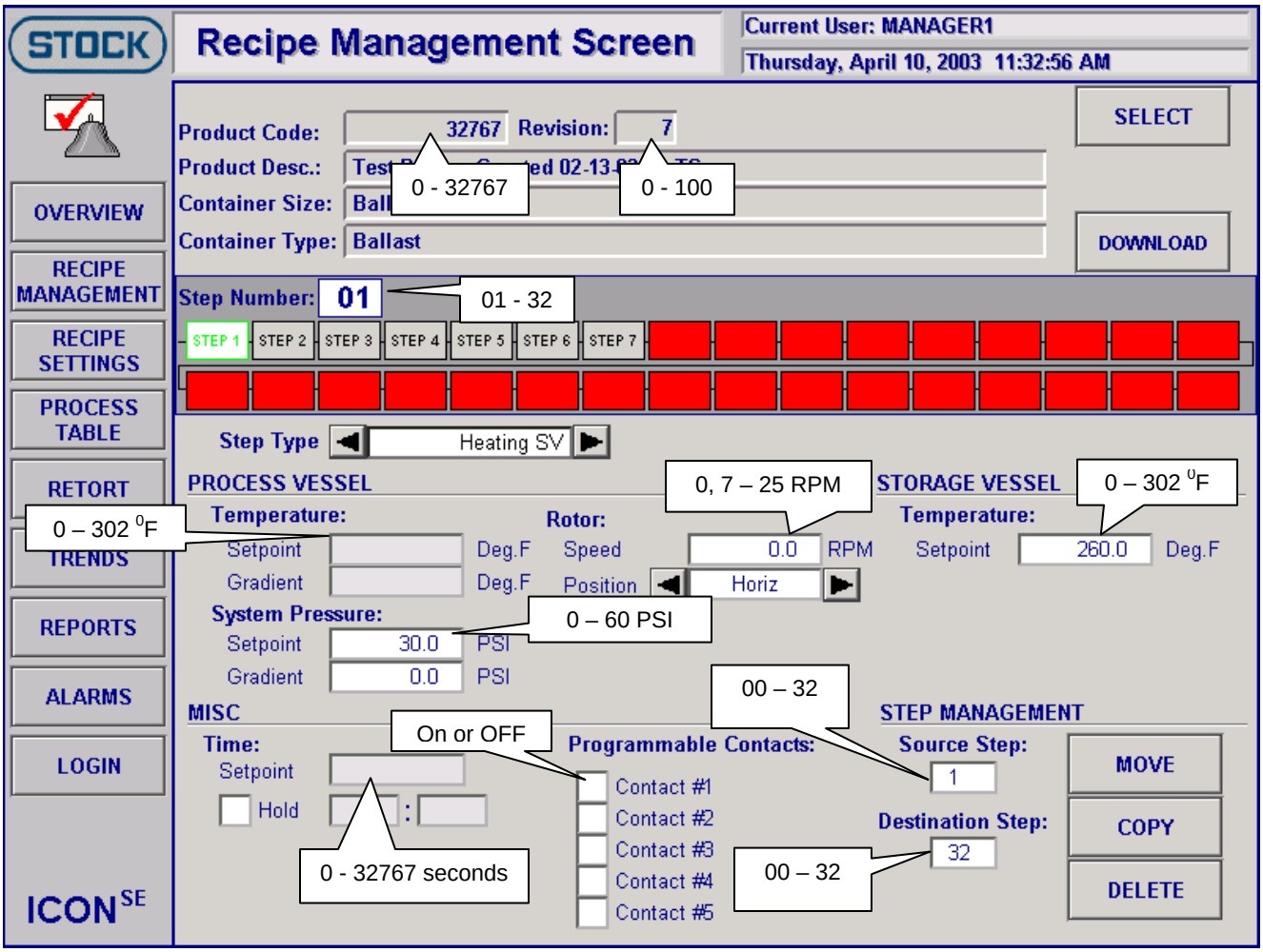
- Lists alarms that occurred during a cook.
- Automatically prints at the end of cook cycle
- Alarm Indications
  - o *Blinking Light or Horn* - Indicates that an alarm condition exists for prompt for user inputs.
  - o *Steady Light or Horn* – Critical Alarm and needs to be evaluated immediately



Button	Function
Ack Current	Operator acknowledges the selected alarm
Ack Page	Operator acknowledges all alarms on the current page
Ack All	Operator acknowledges all of the alarms that have occurred during the entire process

Operational Range of Set Points and Fields (Fig 5.27)

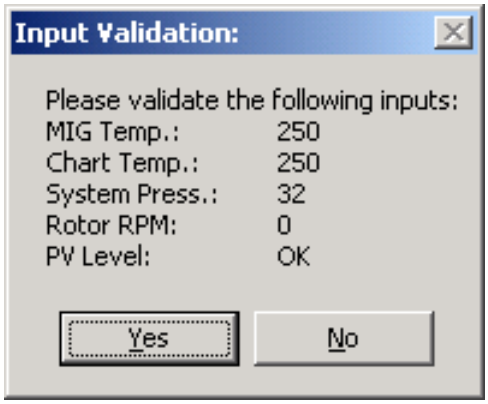
- Set points and recipe parameters are specific to the customer.
- The following screen shows the range of possible set points



Parameter	Description
Process Vessel Temperature Set Point	Temperature the system will achieve during step time
Process Vessel Temperature Gradient	Positive rate of temperature change per minute during the set point time
System Pressure Set Point	Pressure the system will try to achieve and maintain during step time
System Pressure Gradient	Positive rate of Pressure change per minute during the set point time
Step Type	Describes the process step verbally
MISC Time Setpoint	Defines the Step Time
Hold	Used to set a hold at the END of the process step
Programmable Contacts	Used for setting up optional devices, stays active for entire step if activated
Rotor Speed	Speed that will be maintained during step time
Rotor Position	Position of the rotor (A = Horizontal, B and C = custom positions)

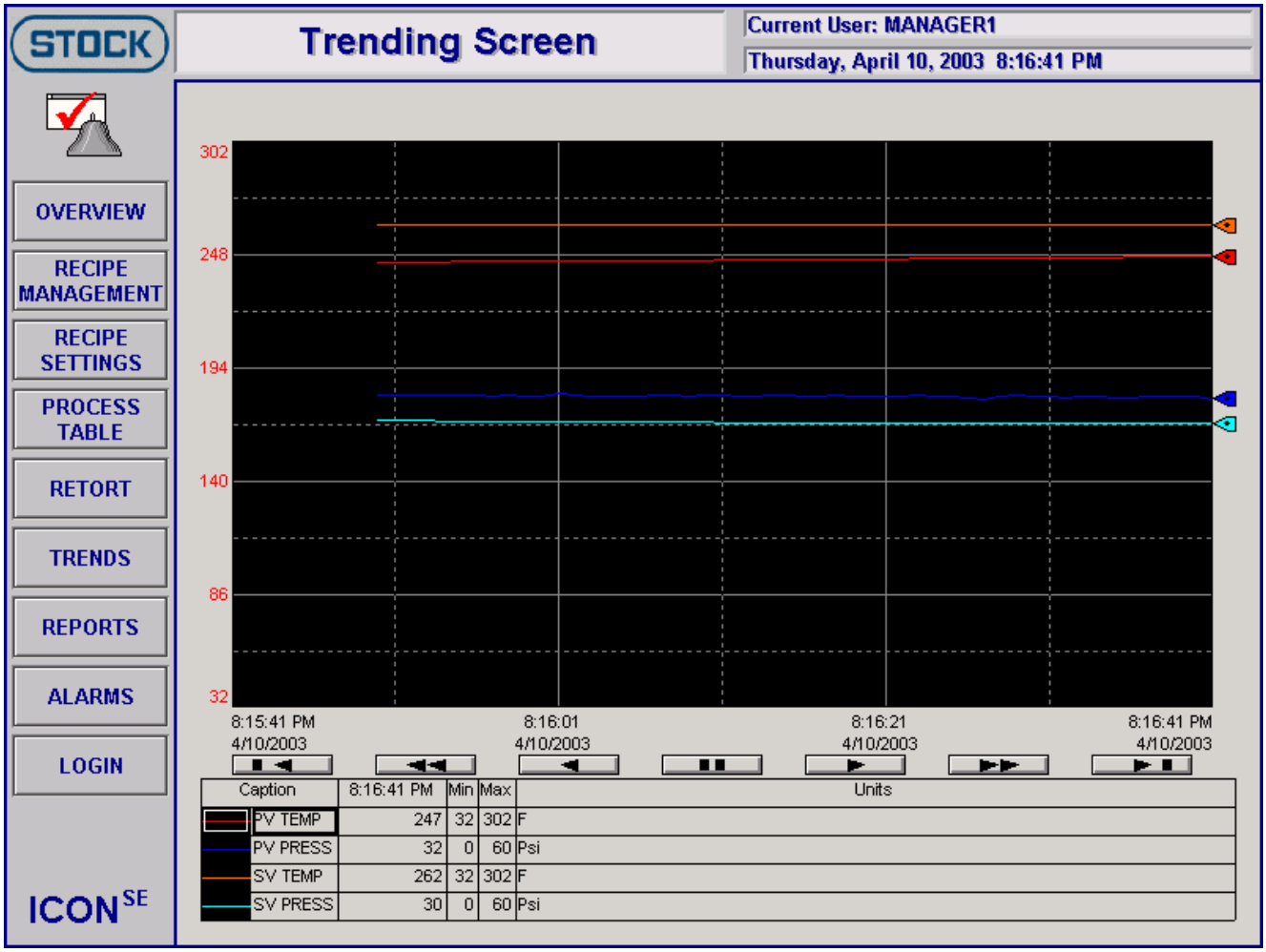
Input Validation (Fig 5.28)

- User input validation screen allow the operator the chance to recheck readings for MIG, Chart Temp, System Pressure, Rotor RPM and Process Vessel water level. Process deviations may result form faulty readings.



Trending Screen (Fig 5.29)

- Trending screen show real time data for the Process & Storage Vessel Temperature & Pressure.
- Allow operator to see a graphical representation of the performance of the selected parameters



SECTION 6 - RECIPE MANAGEMENT

a. Loading Existing Recipes

Step 1 - Select Product Code

- Select the *"Select"* button on the *Recipe Management Screen* (Fig 5.5)

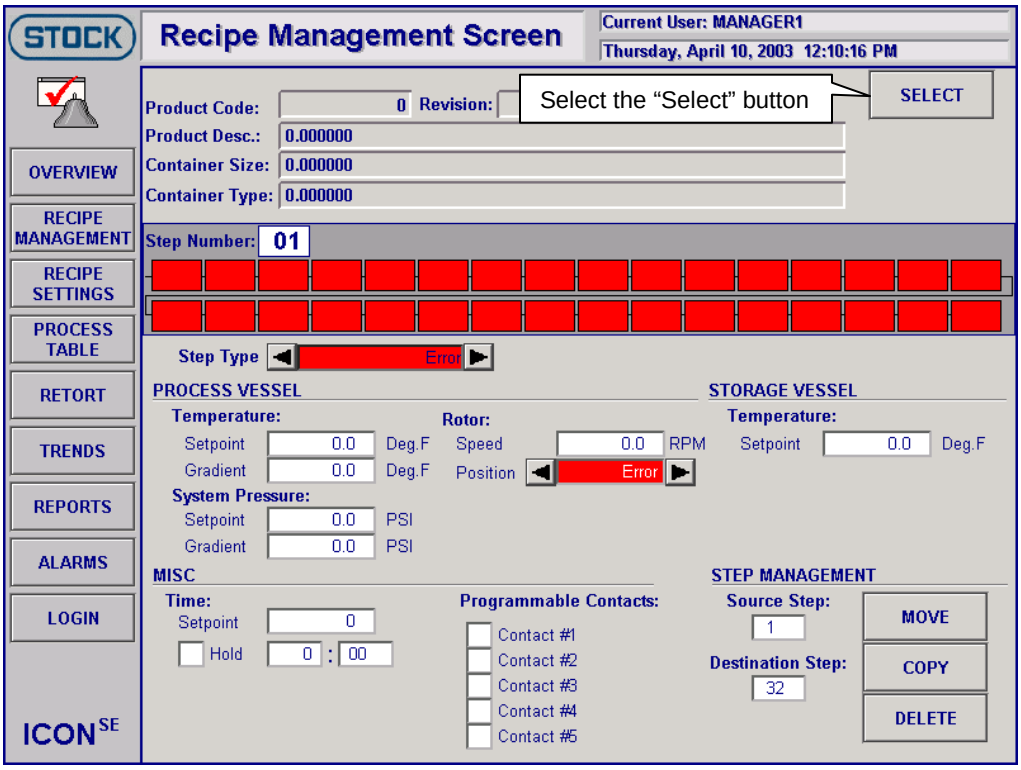


Fig 6.1

Step 2 - Load Product Code

- *Select Product Code* screen will appear. (Fig 5.7)
  - Select field to select recipe to load before selecting *Load* button
  - Select *Load* button – wait until *Product Code* loads before proceeding

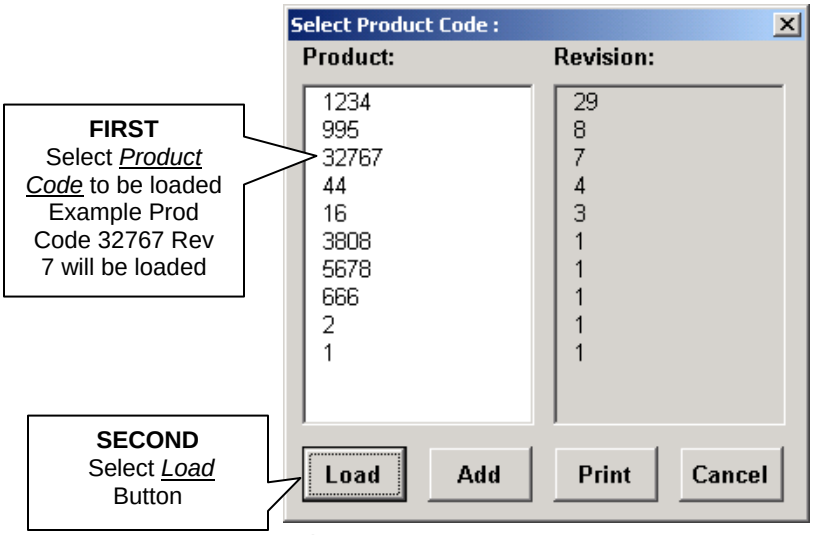


Fig 6.2

Step 3 - Loading Completed

- The Recipe is now *Product Code "32767", Revision "7".*

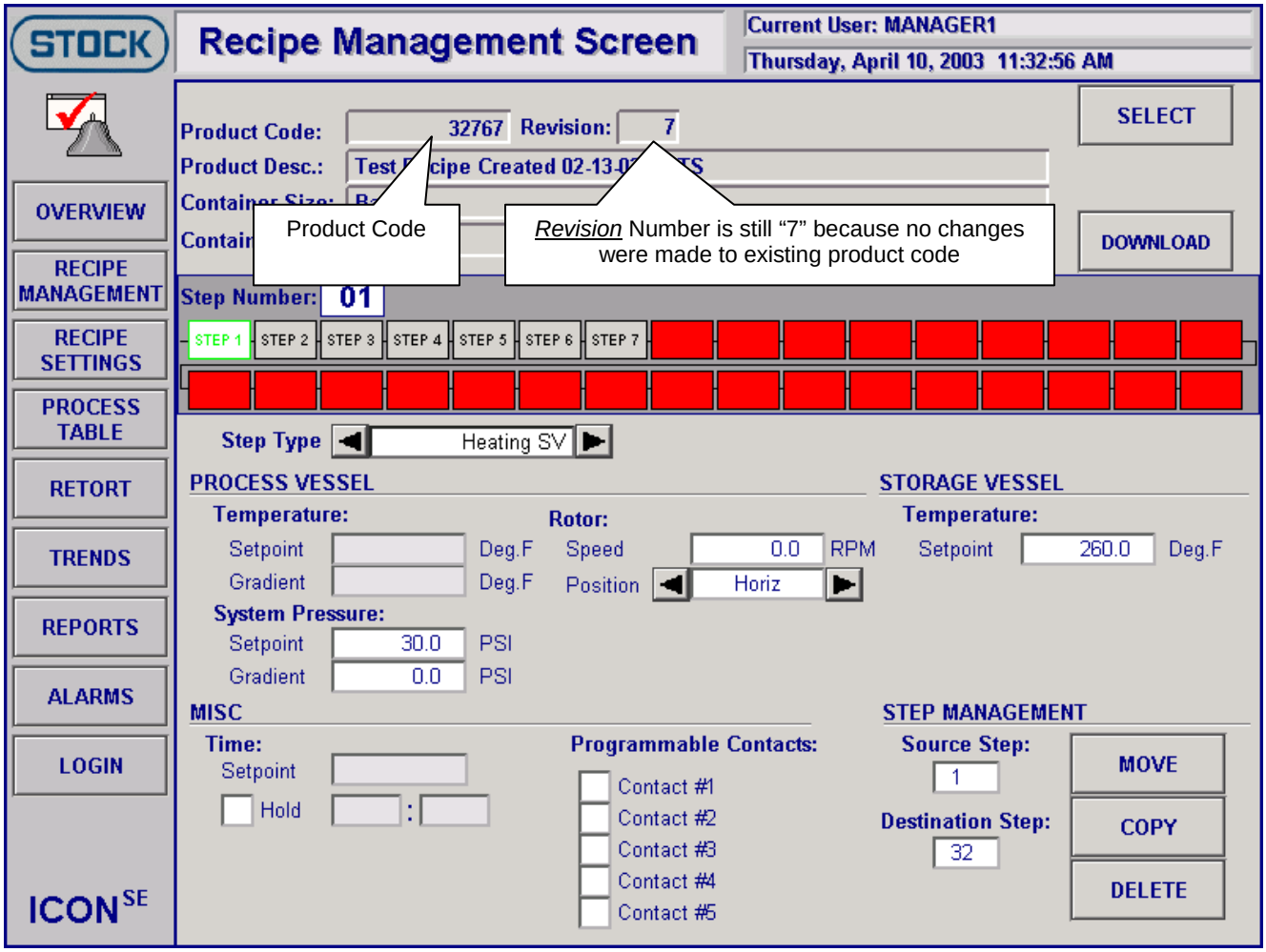


Fig 6.3

b. Clearing Displayed Recipe

General

- Recipes can be cleared from the *Recipe Management Screen* after being loaded (Fig 5.5)
- Select the *Select* button

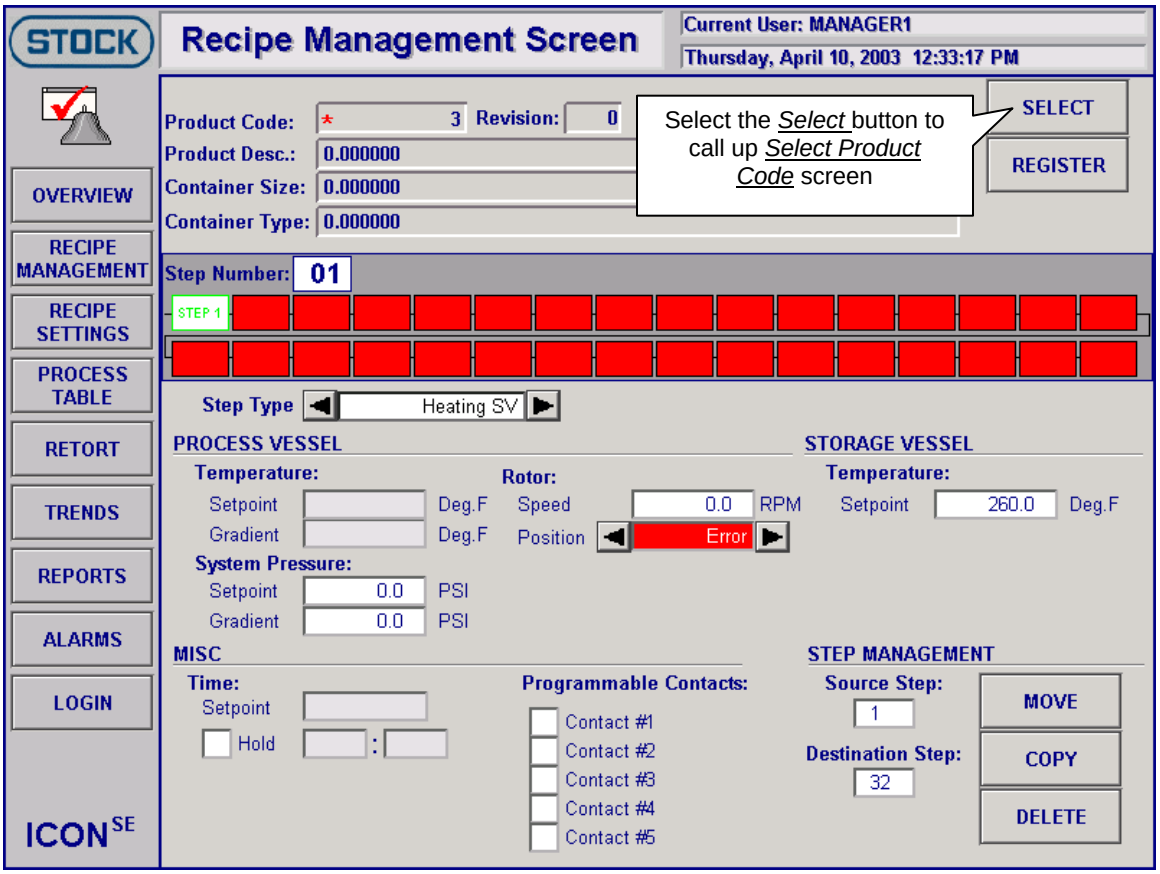


Fig 6.4

- Select the *Cancel* button on the *Select Product Code* screen. (Fig 5.8)

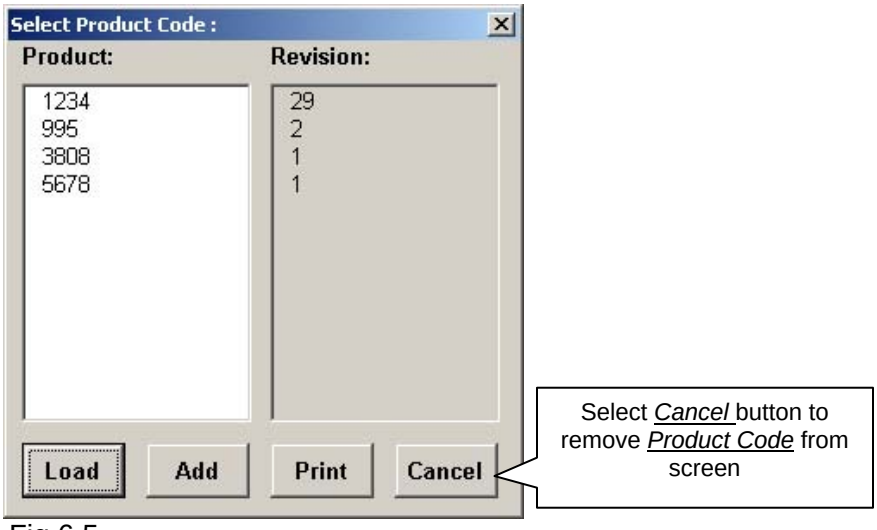


Fig 6.5

c. Creating a New Recipe & Recipe Parameters

General

- Creating a blank template

Step 1 – Add a New Recipe

- Select the *Select* button on the *Recipe Management* screen (Fig 5.5)

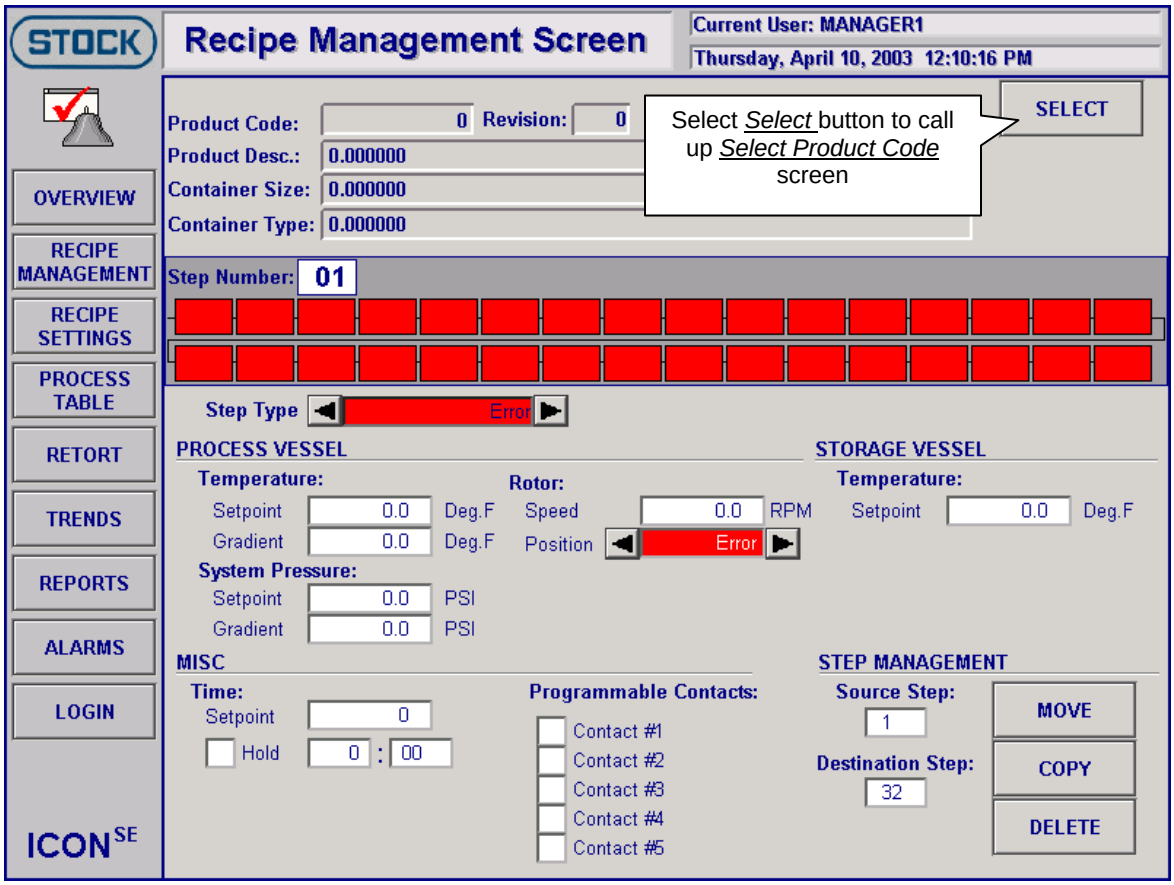


Fig 6.6

- Select *Add* button on the *Select Product Code* screen. (Fig.5.8)

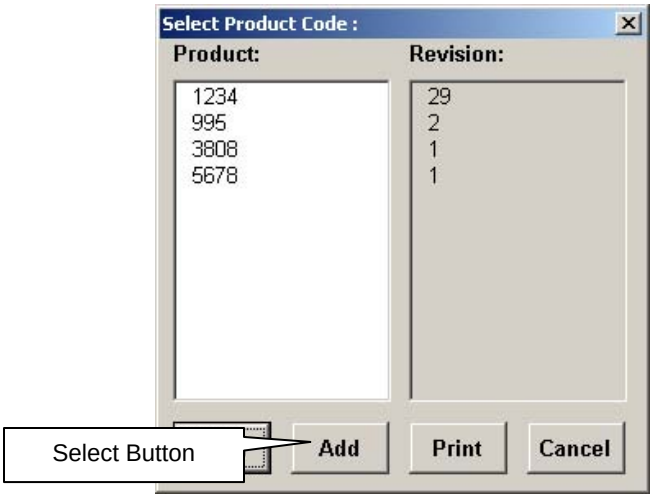


Fig 6.7

Step 2 - Choosing a Step

1. Select a recipe *Step Number* field to configure
2. Select *Step Type* using arrows to toggle through available step descriptions
3. Asterisk ("*") appears in *Product Code* field indicating changes have been made that need saving

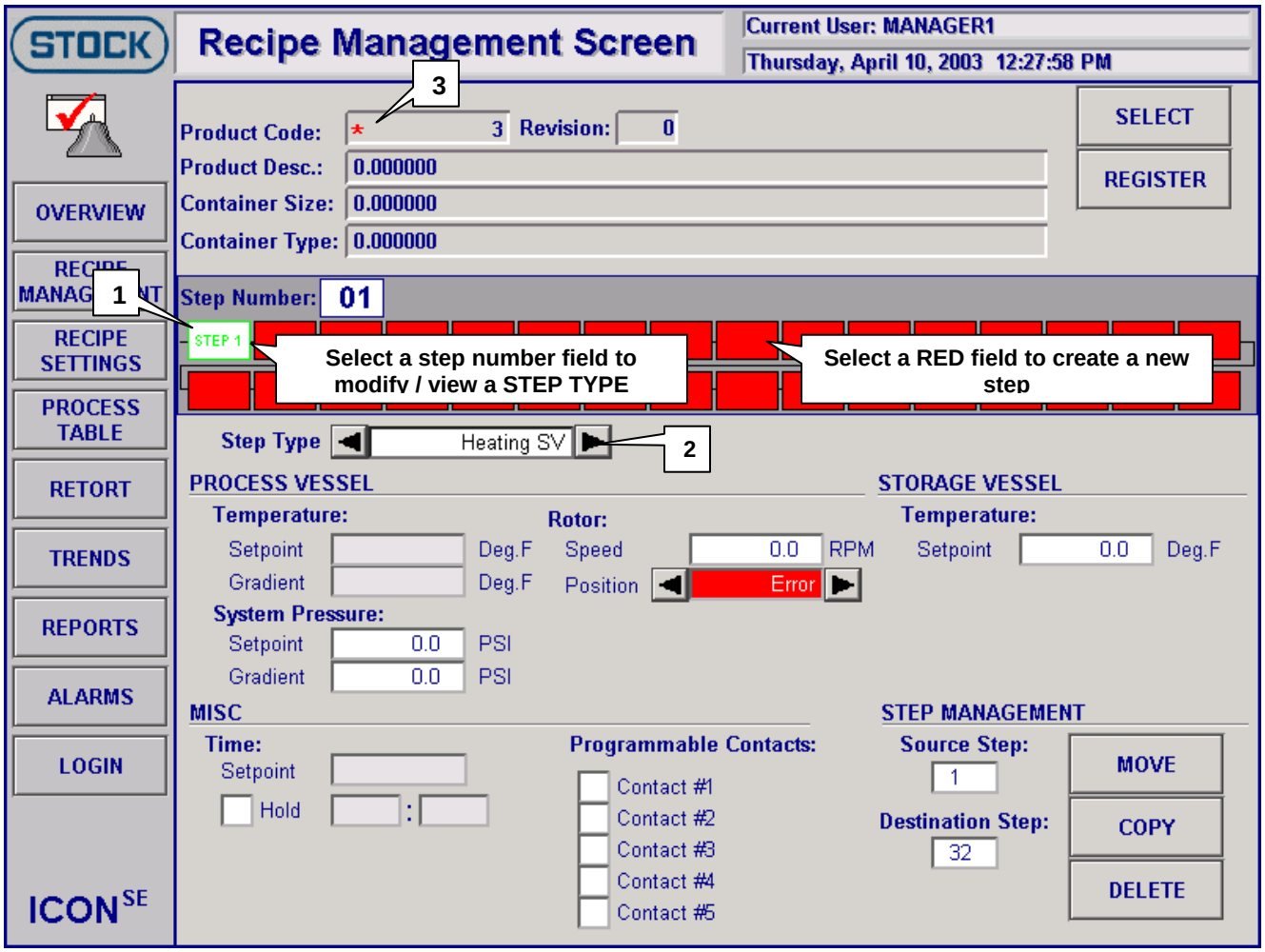


Fig 6.8

NOTE
A new **"Revision Number"** will be automatically added to the "Product Number" and displayed on the *"Recipe Management Screen"* after the recipe is **REGISTERED or UPDATED**.

`

Step 3 - Creating New or Changing Set Point Parameters - Begin

- Select recipe parameter to be modified by selecting the field. Example: Storage Vessel Temp.

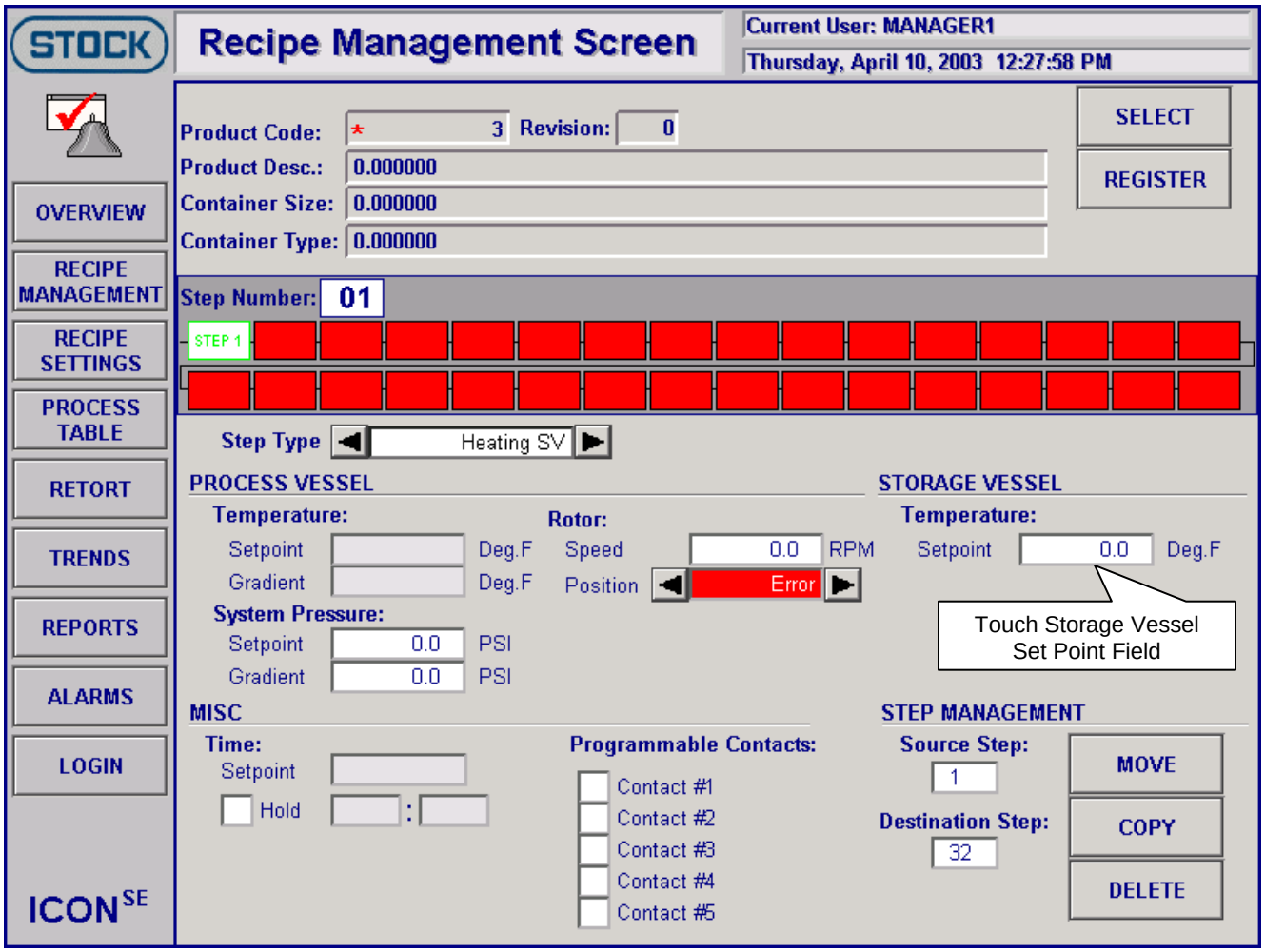


Fig 6.10

Step 4 - Set Point - Input

- "*Set point Input*" screen will appear. (Fig 5.9)
  - Select the blue field and a numeric *Keypad* screen will be displayed for data entry.

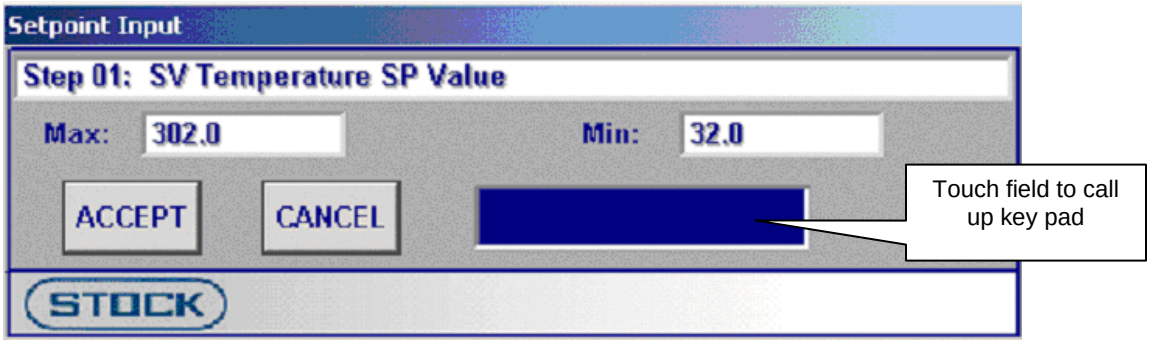


Fig 6.11

Step 5 - Set Point – Data Entry

- Enter data on *Keypad* screen. (Fig. 5.4)
  - To ***Update Field*** select the button after entries have been made to update recipe changes to the controller display

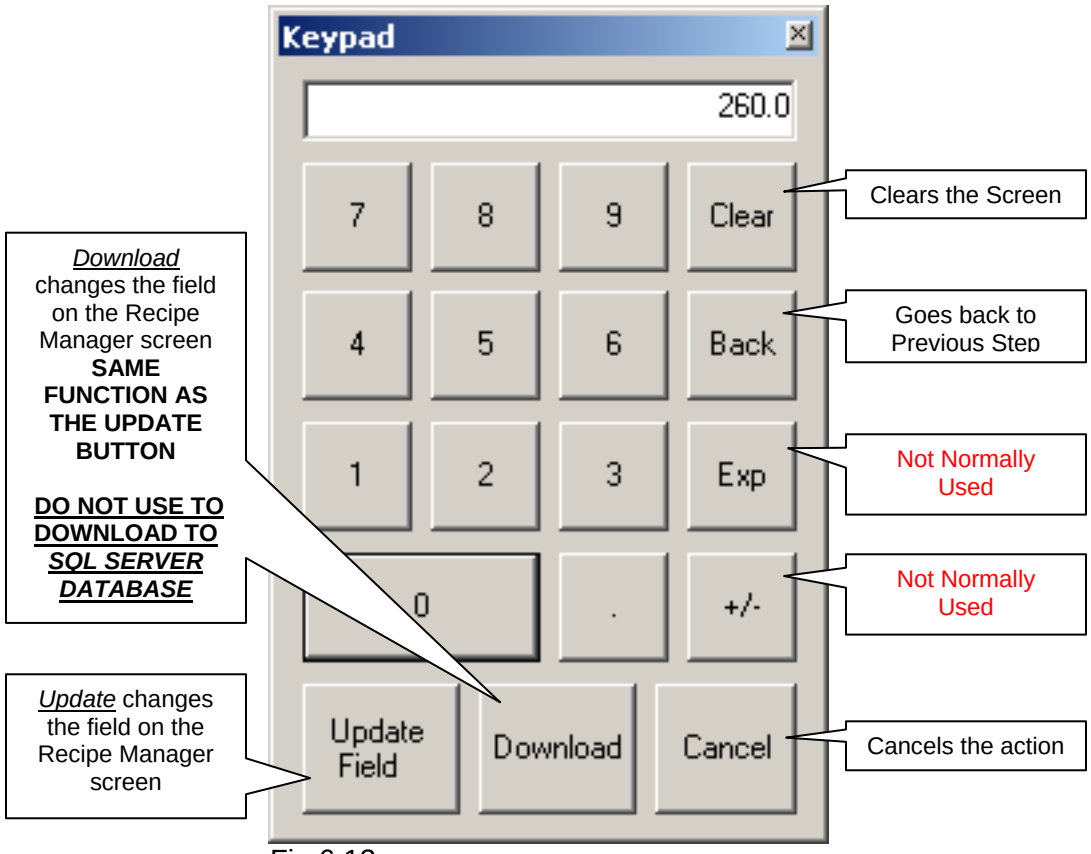


Fig 6.12

Step 6 - Set Points – Accept or Reject

- Accept or reject entered data by selecting *Accept* or *Cancel* buttons

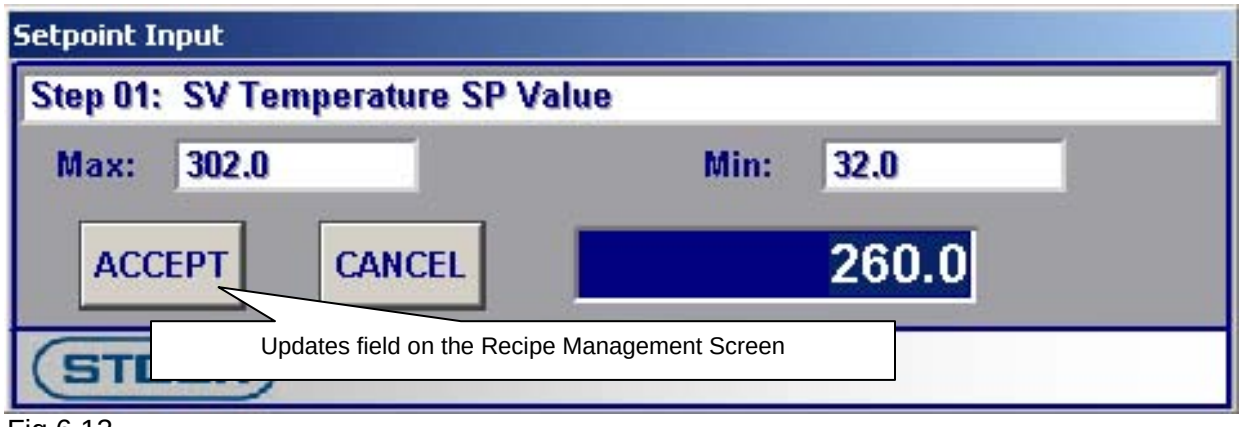


Fig 6.13

Step 7 - Set Points – Screen Shot Finished Recipe

- Value of *260 ^{0}F* for the *Storage Vessel Temperature Set point* is now entered for *Recipe Step Number 1*.

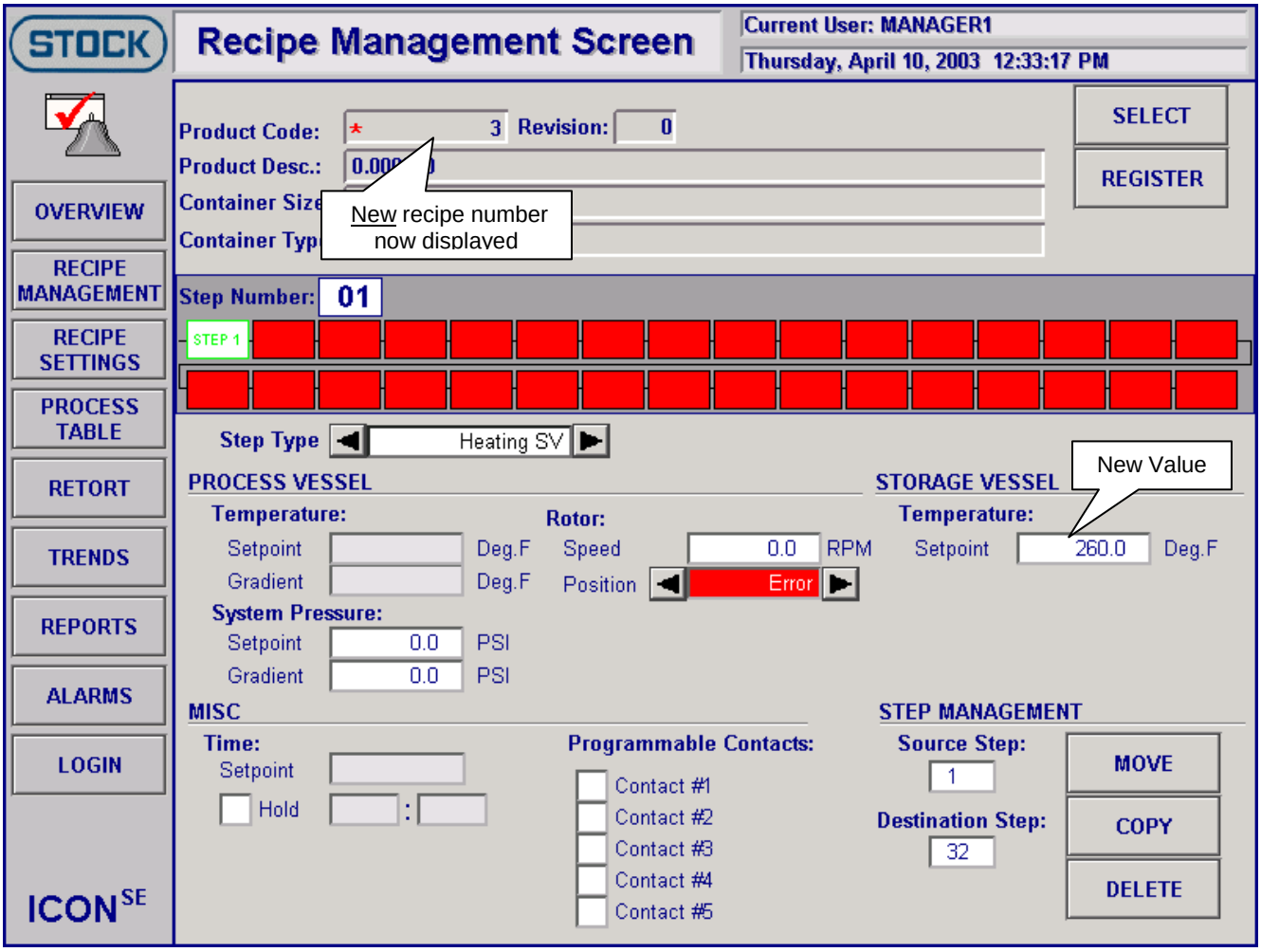


Fig 6.14

Step 8 - Step Management

- Used to copy, move or delete. Use to copy or move information from one step to another.
- *Copy* or *Move* –
  - Select *Source Step* field, enter step number on *String Input* (Fig 5.15)
  - Select *Destination Step* field desired for the Copied or Moved step to be pasted to.
    - Select *Destination Step* field, enter step number on *String Input*
  - Select desired function button.
- *Delete* –
  - Select *Source Step* field, enter step number on *String Input*
  - Select *Delete* function button.

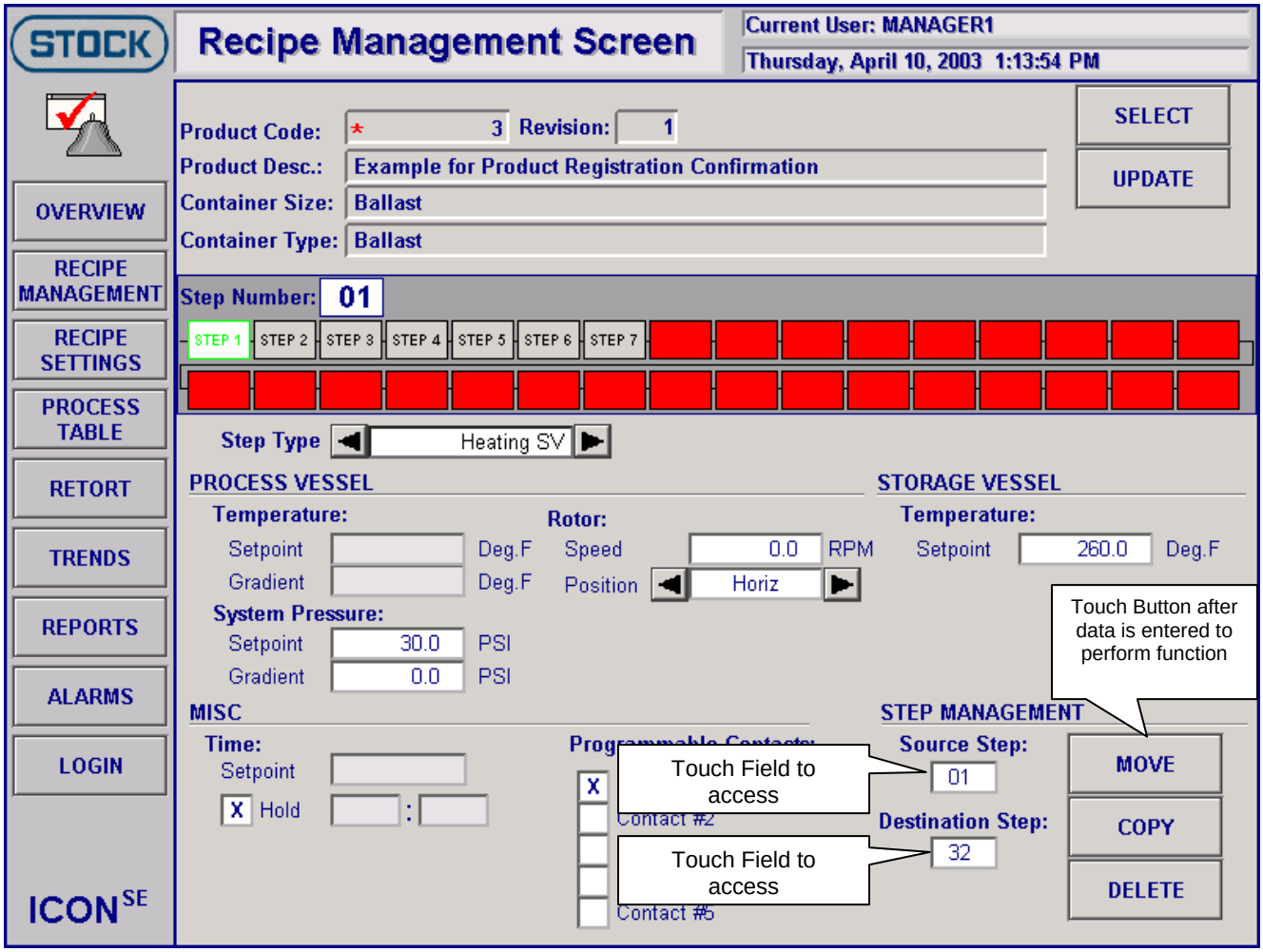


Fig 6.9

Field or Button	Function
Move Button	Moves data from *Source Step* to *Destination Step*
Copy Button	Copies data from *Source Step* to *Destination Step*
Delete Button	Deletes step that is indicated in *Source Step* box
Source Step	Is the step that is chosen for *Moving, Copying or Deleting*
Destination Step	Is the step that is chosen for information to be Moved to or Copied to

Step 9 – Product Registration - SEE SECTION 6(f)

- Repeat data edits for all Steps
- Once the ***Product Code / Recipe*** has been completely updated with new information register the recipe.

d. Creating Recipes from a Template

General

- New recipes can be **added** using a template from an existing product code (recipe) that has similar operational characteristics

Step 1 – Load Product Code Template – See Section 6(a)

Step 2 - New Product Code Designation

- Select the *Select* button on *Recipe Management Screen* (Fig 5.5)

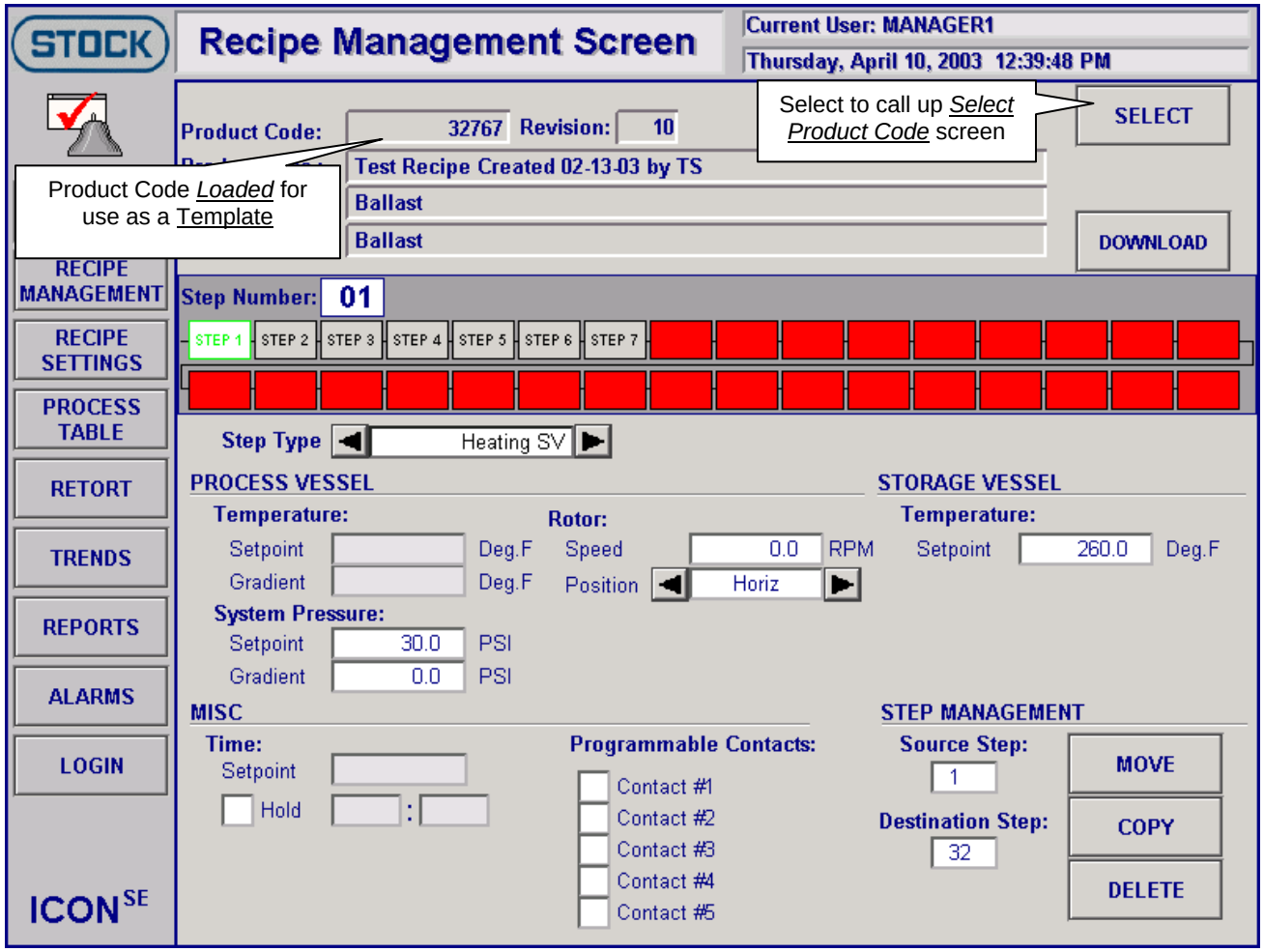


Fig 6.15

- *Select Product Code* screen will appear → Select *Add* button(Fig 5.8)
- *Keypad* screen will appear. (Fig 6.12)
  - Enter **NEW** Product Code Number: Select *Accept* button enters data into *Product Code*
- Make necessary changes to step parameters, recipe settings, and process tables in the same manner.

Step 3 – Update & Register Product – See Section 6 (e) (f)

e. Updating Recipes

General

- **Updating a *Product Code* after making changes is CRITICAL and MUST BE DONE after changes have been made to a recipe.**
- **Failure to *Update* will result in the changes not being saved to the New *Product Code***

Step 1 - Updating of Recipe

- *Update* – Select the button on the *Recipe Management* screen
  - o *Keyboard* - screen will appear - Enter Password and User information (Fig 5.3)

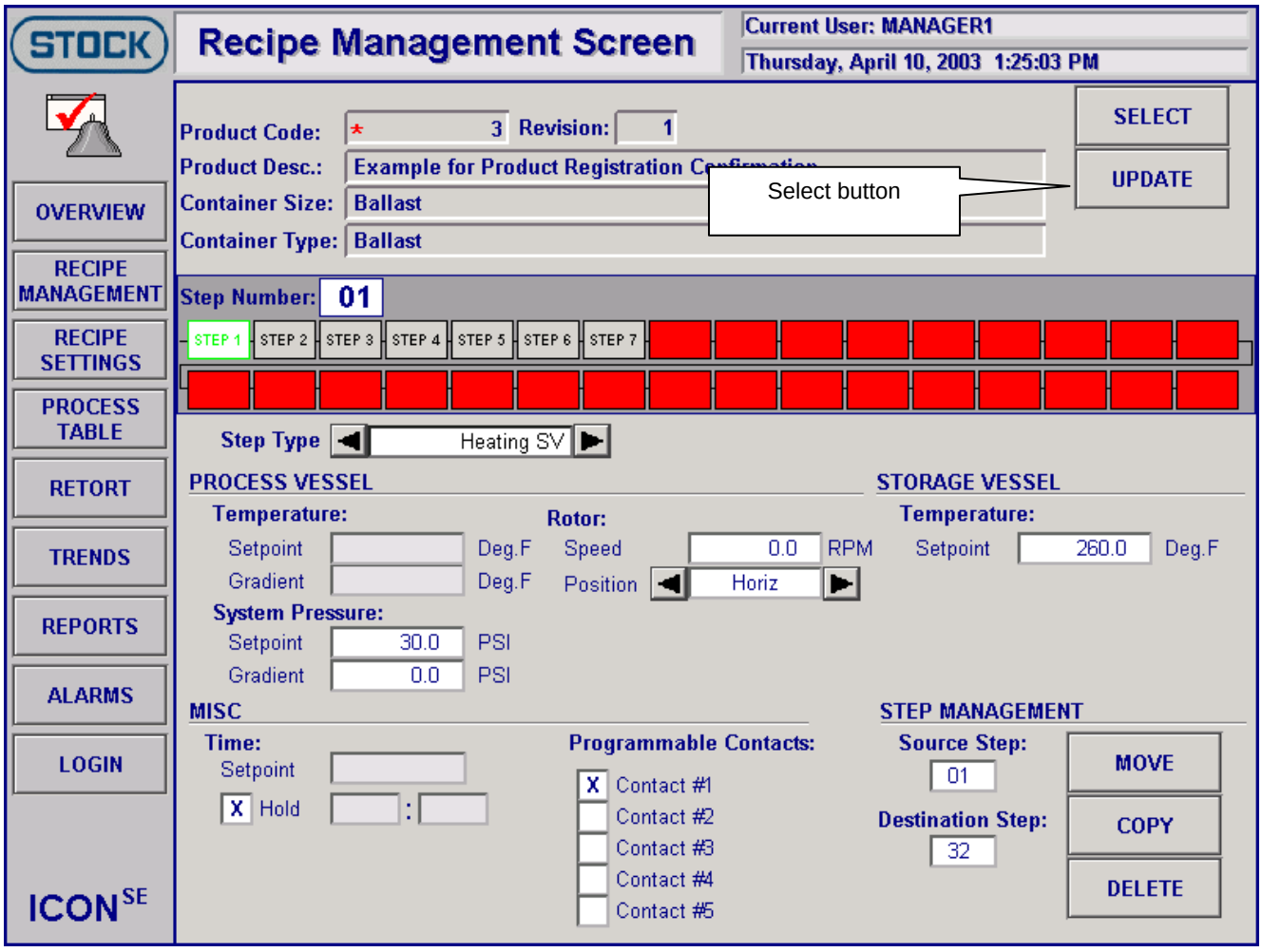


FIG 6.16

Step 2 – Confirmation of Update

- Select the *Confirm* button on the *Update Confirmation* screen

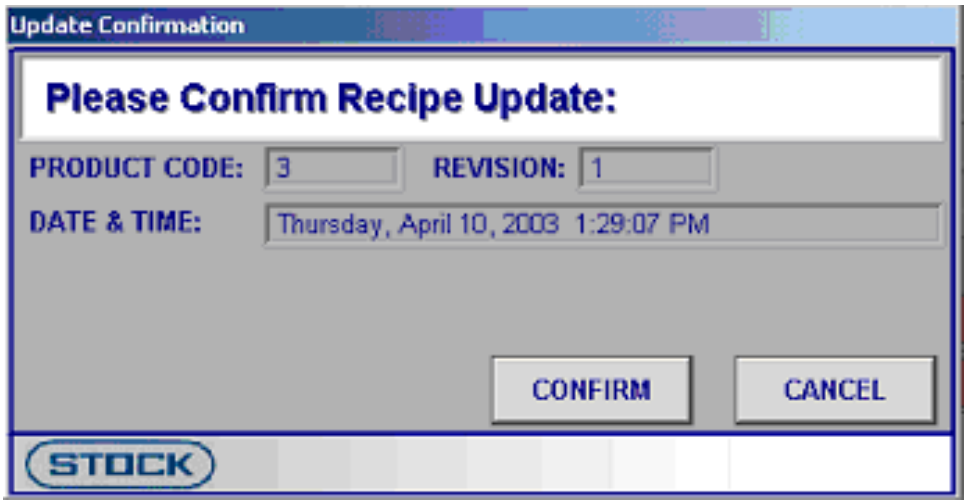


Fig 6.17

Step 3 – Finished Update

- *Update* completed
- Revision number advanced to next number asterisk no longer visible in product code field

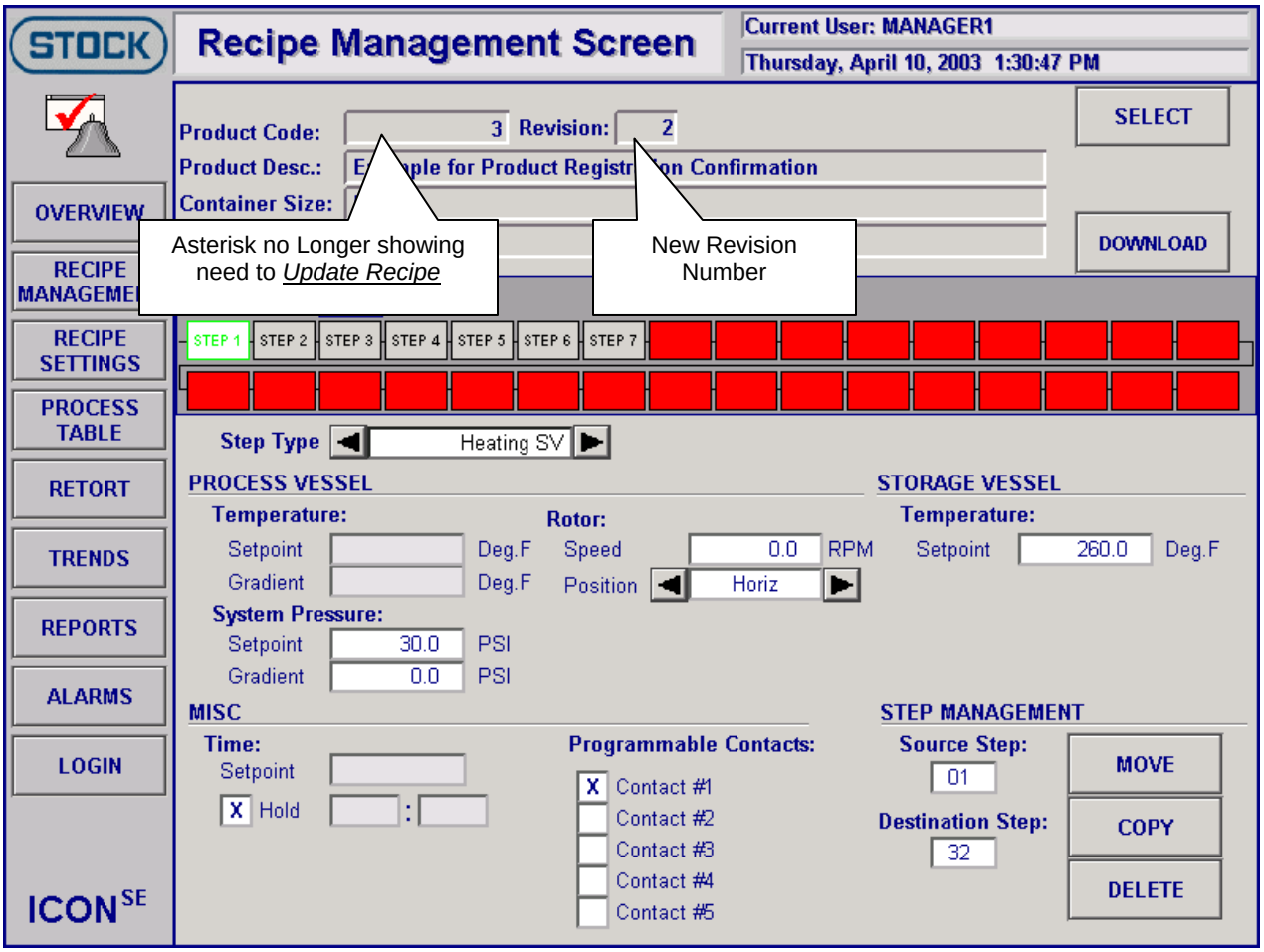


Fig 6.18

f. Registering Recipes

General

- Registration of a new *Product code* is required after a new Recipe/Product code is completed
- The registration process places the New number in the SQL Server Database for future use

Step 1 - Registration of Recipe

- Select *Registration* button
- *Login* screen will appear, select a text field
- *Keyboard* screen will appear - Enter Password and User information (Fig 5.3)

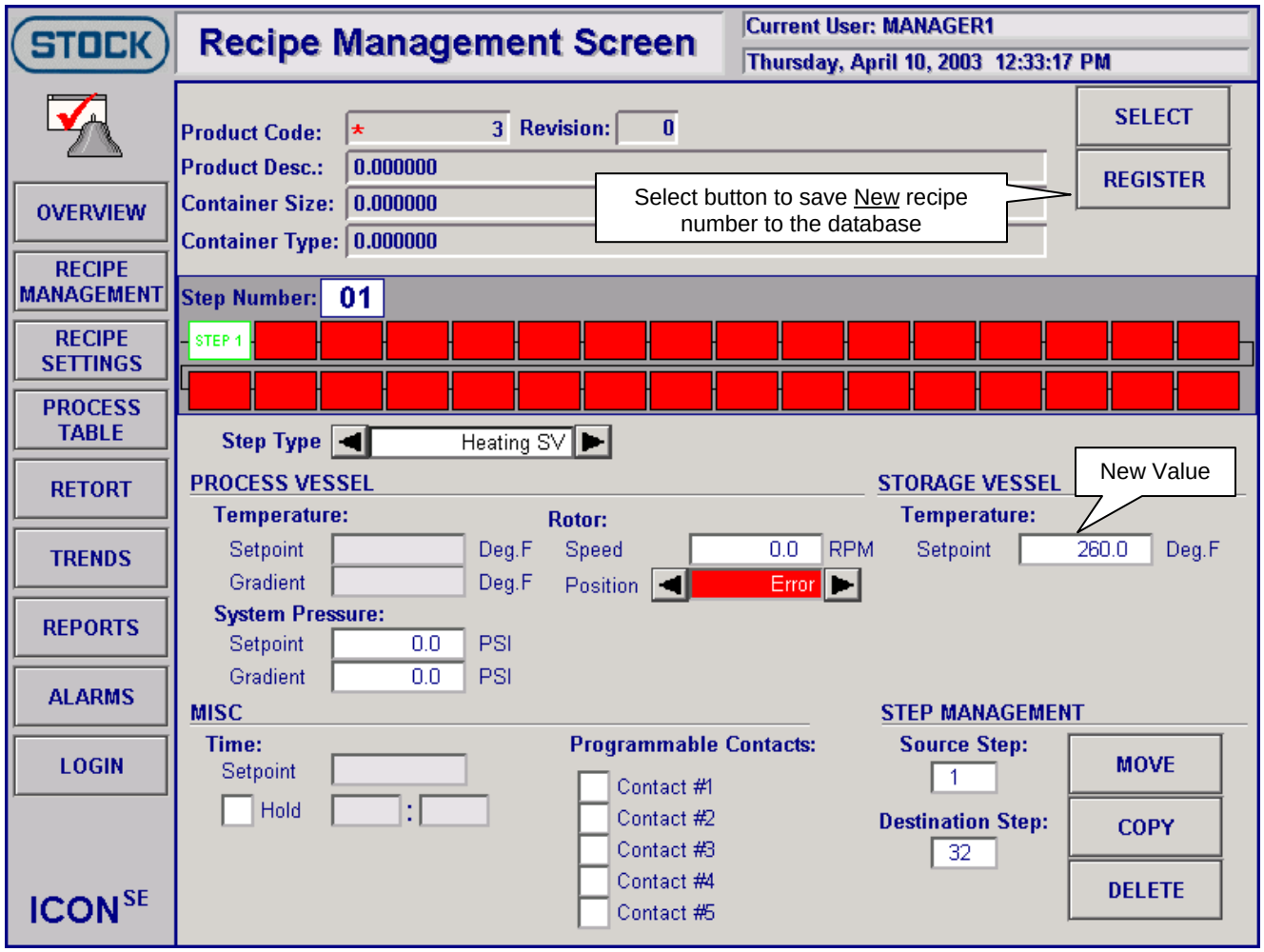


Fig 6.19

Step 2 - Registration Confirmation

- *Registration Confirmation* - Fill out information necessary to identify the *New Product Code*
  - Select *Confirm* button
  - Prompt to ***Please wait registration in progress…***

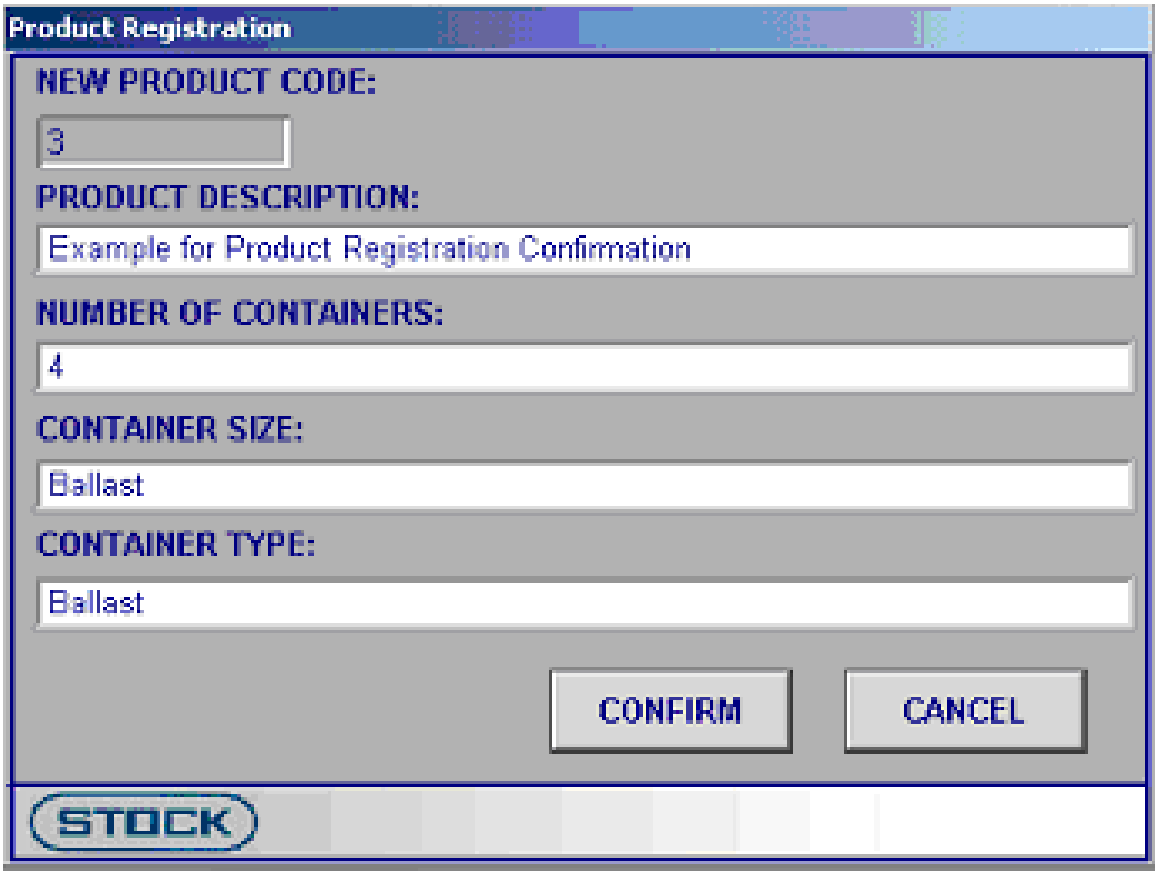


Fig 6.20

g. Downloading Recipes

General

- **The *Downloading* function places the *Product Code* in the HOST PC for use**
- **Retort will run the last *Product Code* downloaded**

Step 1 - Downloading

- Select the *Download* button on the *Recipe Management Screen*
- *Keyboard* - screen will appear - Enter Password and User information (Fig5.3)

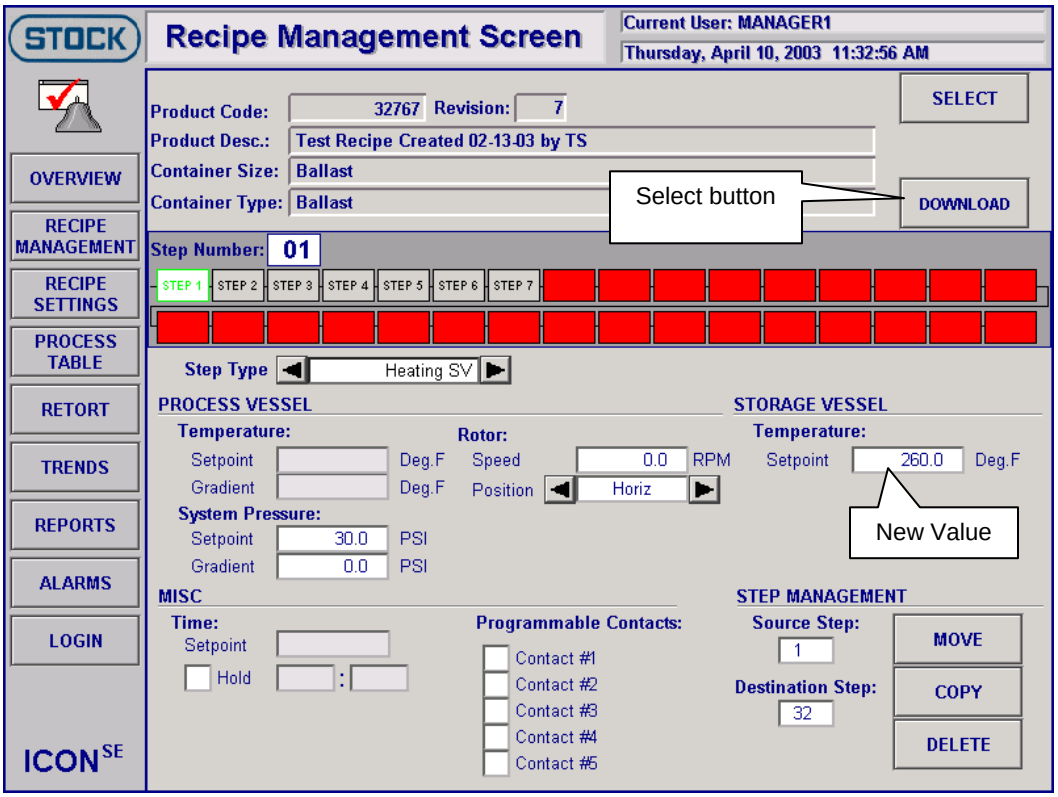


Fig 6.21

Step 2 – Download Confirmation

- *Download Confirmation* screen will appear, fill in text as needed to identify
- *Confirm* – Select the button on the *Download Confirmation* screen
  - Prompt to ***Please wait download in progress…***

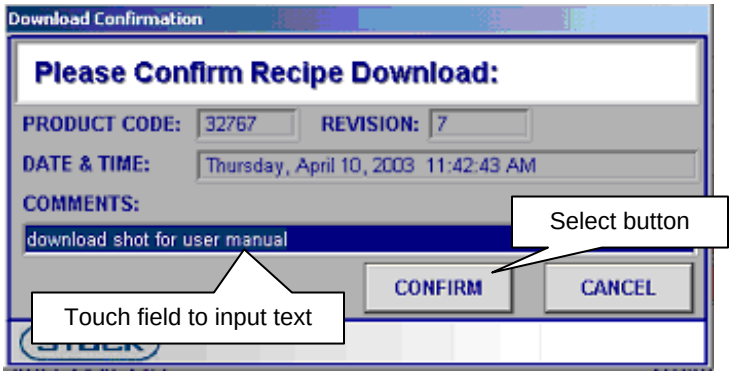


Fig 6.22

SECTION 7 - ICON^{SE} MODIFY PROCESS STEPS

a. Example Full Water Immersion Step Modification

Step 1 - Heating Storage Vessel (HSV) - Completed

- Enter Recipe Parameters and Recipe Steps for each ***Step Number*** of the Product Code using the procedure outlined in ***Section 6(b)***.

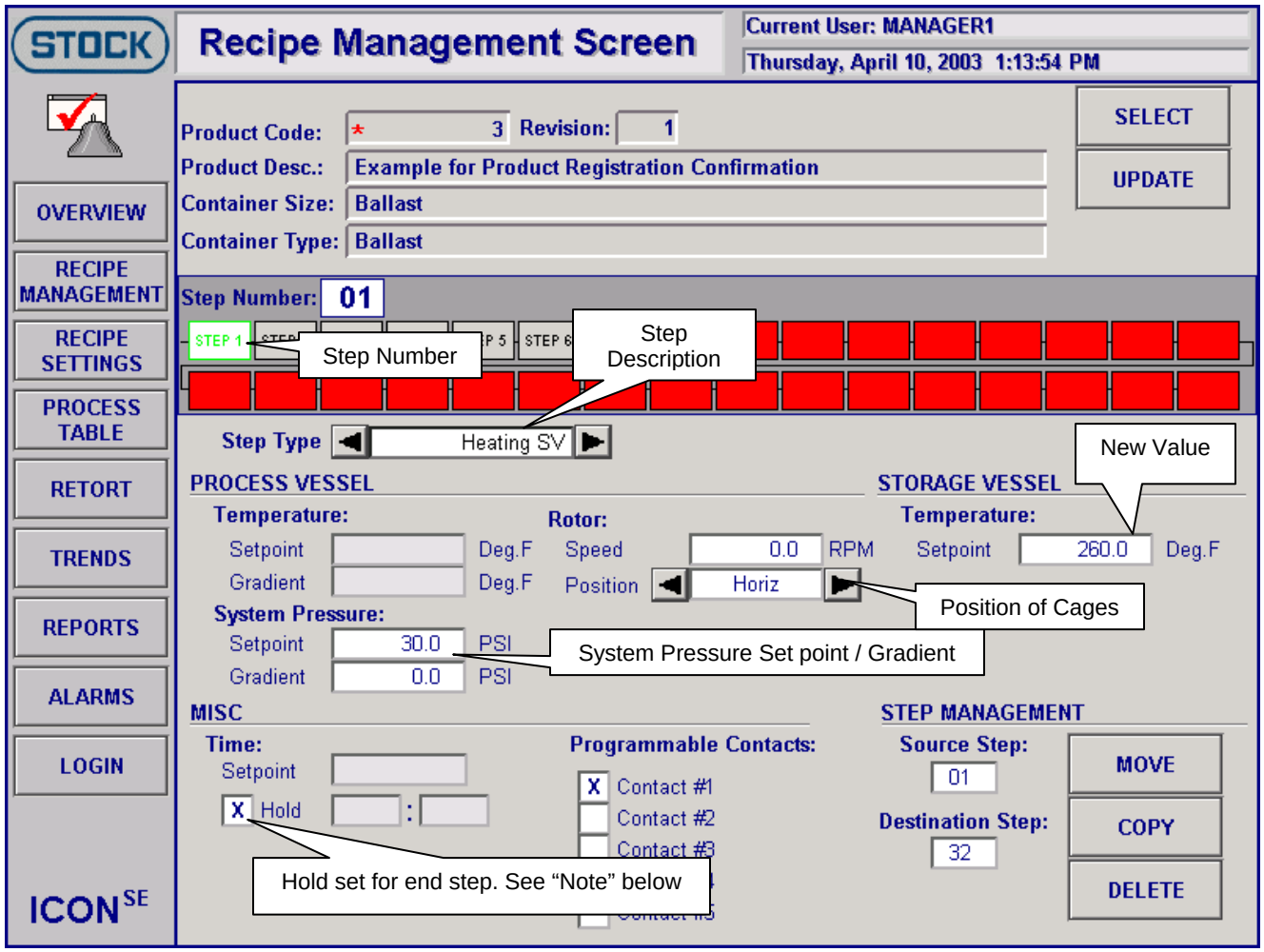


Fig 7.1

NOTE
It is recommended that a **"Hold"** be placed in the last "Heating Storage Vessel (HSV)" step.
If the recipe will require the operator to enter **"Initial Temperature" (I.T.) it is not recommended that a "Hold"** be included at the end of the last HSV step. Refer to "Recipe Settings" section for information on the "Recipe Settings" page.

Step 2 - Sterilization 1 (S1) - Completed

- Retort Vent step - used to remove air and fill the retort to the desired level.
- Example of data needed for a typical Sterilization 1 step.
- To enter Recipe Parameters and Recipe Steps see Section **5b**
  1. Select *Step Number* – Choose step to modify
  2. Select *Step Type* field – Choose desired description from list
  3. Select *Speed* – Set RPM (Usually 0 in S1)
  4. Select *Rotor Position* – Choose desired position from list (depends upon container)
  5. Select *System Pressure Setpoint* – 0 to 60 PSI
  6. Select *System Pressure Gradient* – Increase over the duration of the step
  7. Select *Time Setpoint* – This is the duration of the step expressed in **seconds**

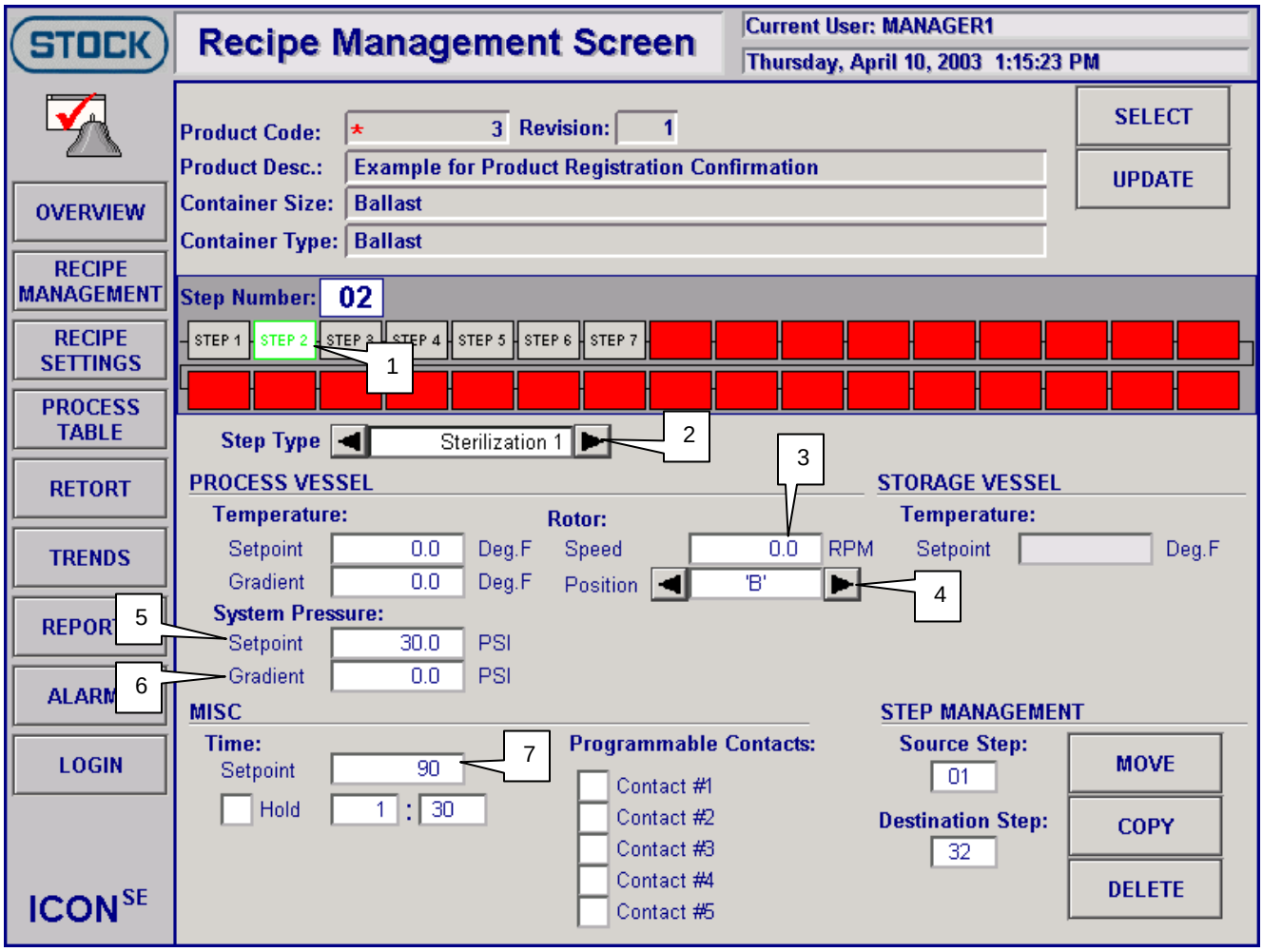


Fig 7.2

Completed Sterilization 1 Step

Step 3 - Sterilization 2 (S2) - Completed

- Defined as Retort Come Up Time
- Data needed for a typical Sterilization 2 (Retort Come-Up Time) step.
  1. Select *Step Number* – Choose step to modify
  2. Select *Step Type* field – Choose desired description from list
  3. Select *Speed* – Set RPM
  4. Select *Rotor Position* – Choose desired position from list
  5. Select *Temperature Set Point* – Set point for Processing Temperature or overshoot temperature during Come Up.
  6. Select *Temperature Gradient* – Increase in temperature per minute during the step
  7. Select *System Pressure Setpoint* – 0 to 60 PSI
  8. Select *System Pressure Gradient* – Increase in PSI per minute during the step
  9. Select *Time Setpoint* – This is the duration of the step expressed in seconds

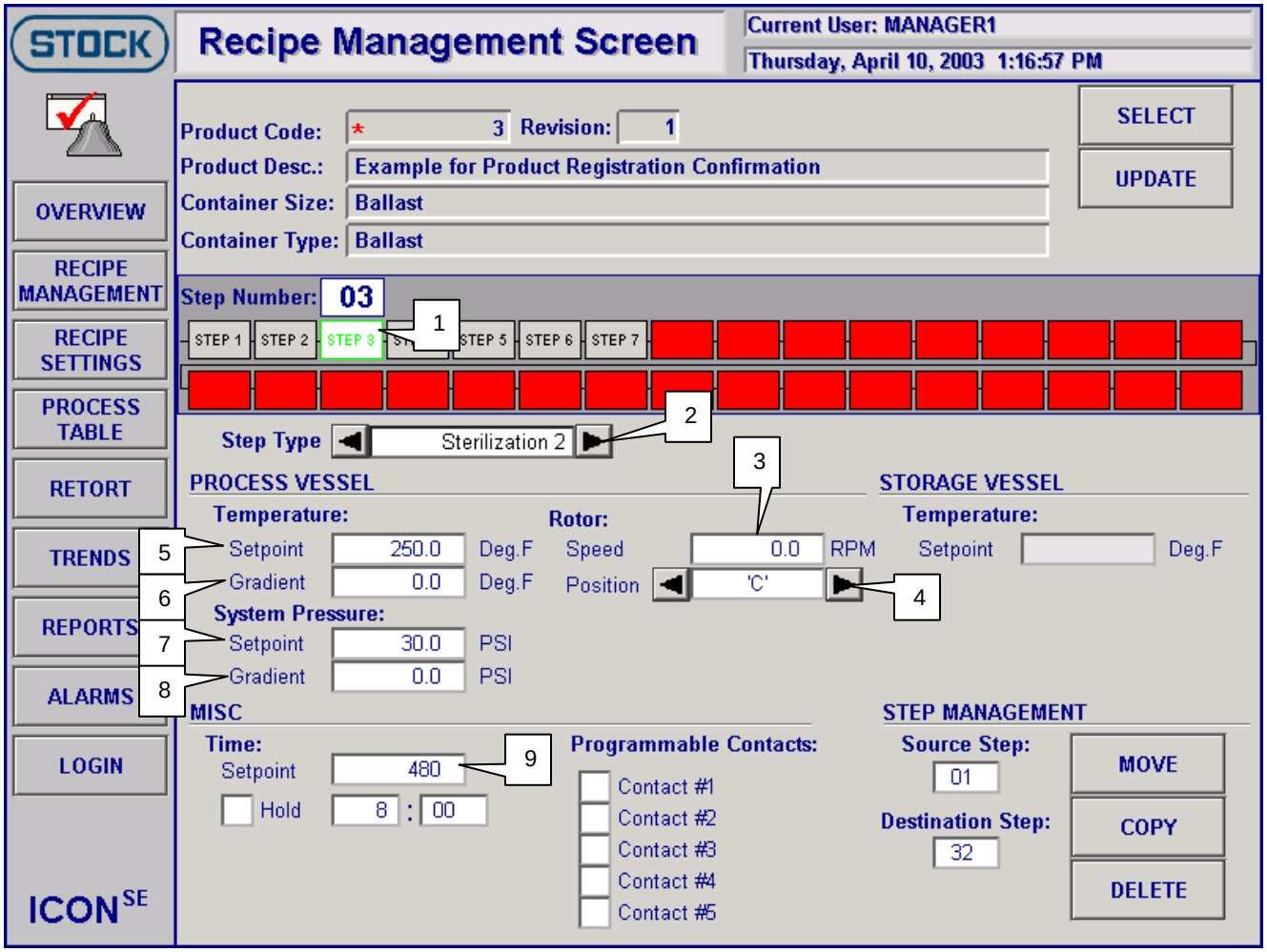


Fig 7.3

Completed Sterilization 2 (S2) Step

Step 4 - Sterilization 3 (S3) - Completed

- Defined as Cook Phase of operation
- Modify the Following Control Points as per previous step.
- Data needed for a typical Sterilization 3 (Cook) step.
  1. Select *Step Number* – Choose step to modify
  2. Select *Step Type* Field – Choose desired description from list
  3. Select *Speed* – Set RPM
  4. Select *Rotor Position* – Choose desired position from list
  5. Select *Temperature Set Point* – Set point for Processing Temperature.
  6. Select *Temperature Gradient* – Increase in temperature per minute during the step
  7. Select *System Pressure Set point* – 0 to 60 PSI
  8. Select *System Pressure Gradient* – Increase in PSI per minute during the step
  9. Select *Time Set point* – This is the duration of the step expressed in seconds

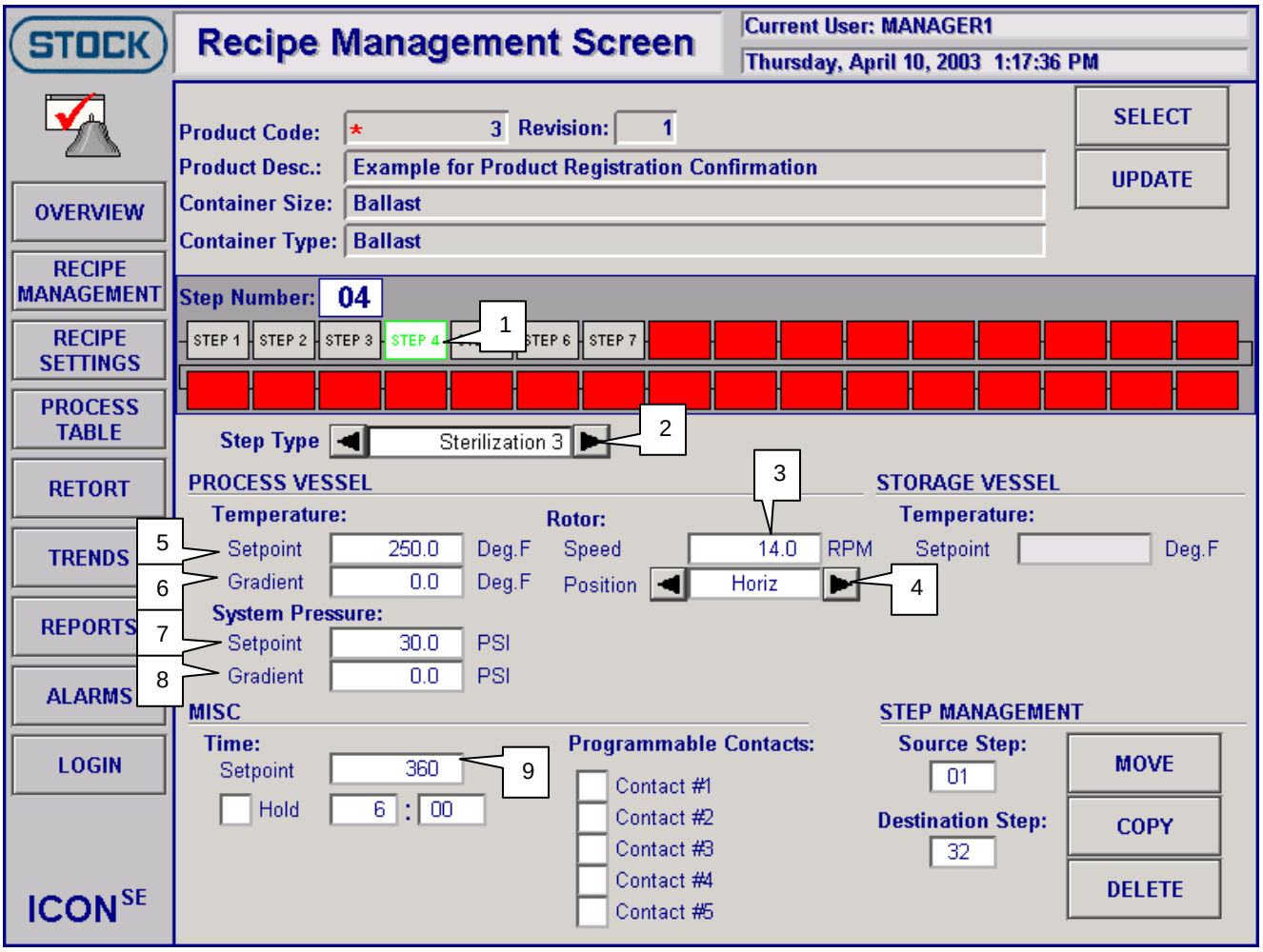


Fig 7.4

Completed Sterilization 3 (S3) Step

Step 5 - Cooling 1 (C1) - Completed

- Defined as the phase of cooling use to recover some of the processing water to the Storage Vessel and the initial cooling phase.
- Not a timed phase
- Data needed for a typical Cool 1 (Cooling) step.
  1. Select *Step Number* – Choose step to modify
  2. Select *Step Type* Field – Choose desired description from list
  3. Select *Speed* – Set RPM
  4. Select *Rotor Position* – Choose desired position from list
  5. Select *System Pressure Set Point* – 0 to 60 PSI
  6. Select *System Pressure Gradient* – Increase or decrease in PSI during the step

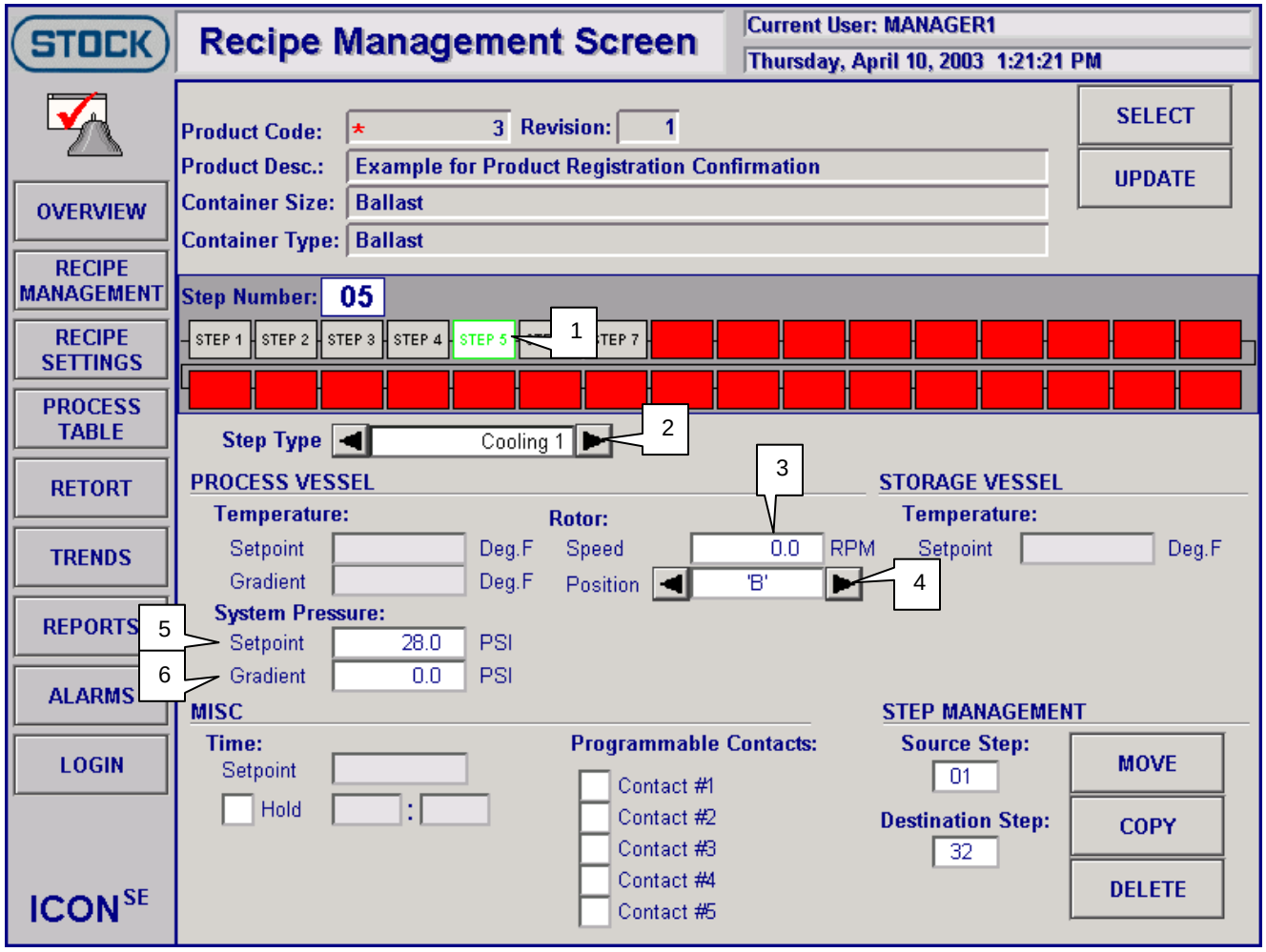


Fig 7.5

Completed Cooling 1 (C1) Step

Step 6 - Cooling 2 (C2) - Completed

- Defined as the final cooling phase pressure is usually ramped down in this phase as temperature is decreased.
- This phase is based on time as well as end temperature
- Data needed for a typical Cool2 (Cooling) step.
  1. Select *Step Number* – Choose step to modify
  2. Select *Step Type* Field – Choose desired description from list
  3. Select *Speed* – Set RPM
  4. Select *Rotor Position* – Choose desired position from list
  5. Select *Temperature Set Point* – Used to define the temperature at which the retort will go to drain phase.
  6. Select *System Pressure Setpoint* – 0 to 60 PSI
  7. Select *Time Set point* – This is the duration of the step expressed in seconds

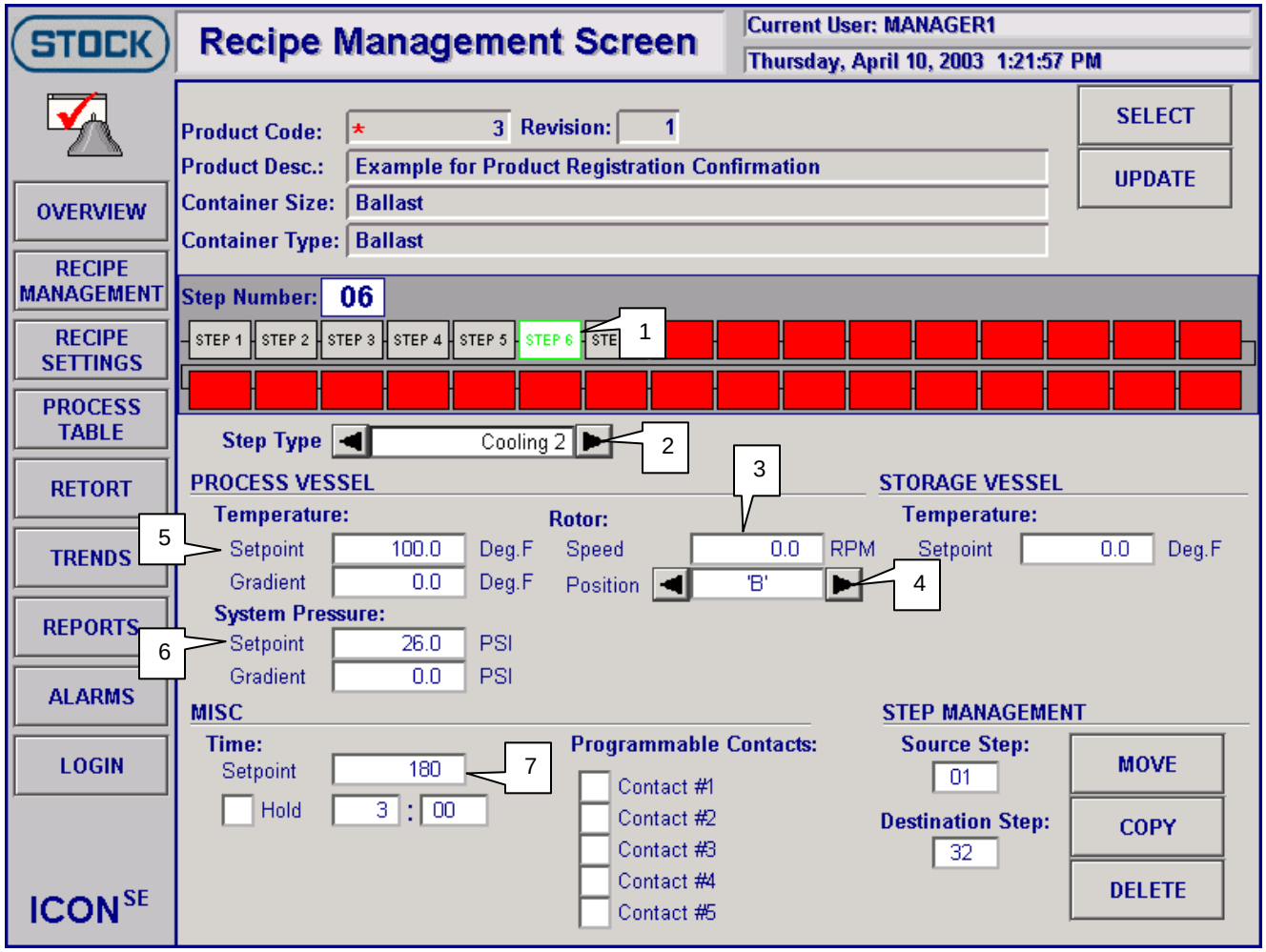


Fig 7.6

Completed Cooling 2 (C2) Step

Step 7 – Drain - Completed

- Defined as the emptying of water form the retort
- Phase duration is based on time
- Data needed for a typical Cool2 (Cooling) step.
  1. Select *Step Number* – Choose step to modify
  2. Select *Step Type* Field – Choose desired description from list
  3. Select *Speed* – Set RPM - Usually to Zero (0)
  4. Select *Rotor Position* – Choose desired position from list
  5. Select *Time Set point* – This is the duration of the step expressed in seconds
  6. Select *Storage Vessel Set point* – This is the temperature the Storage Vessel will preheat to in Drain step

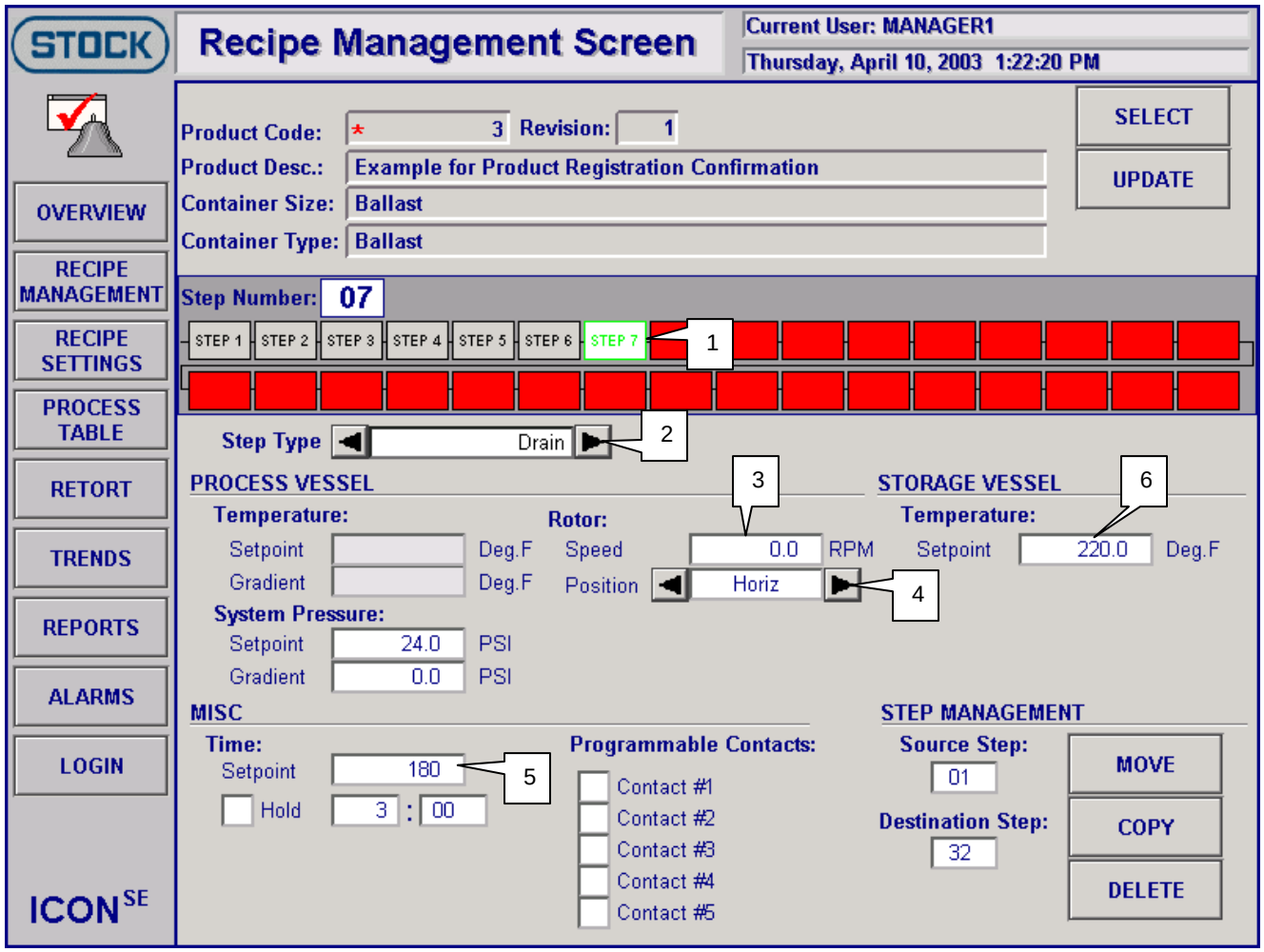


Fig 7.7

Completed Drain Step

Step 8 - Process Table Modification – Completed

- Tables are modified with the data supplied by a **Process Authority**
- All entries are made by selecting the corresponding field and manually entering Using *Keypad.*
- **DO NOT CHANGE TABLES WITHOUT THE AUTHORIZATION OF STOCK America Inc.** or **Process Authority.**

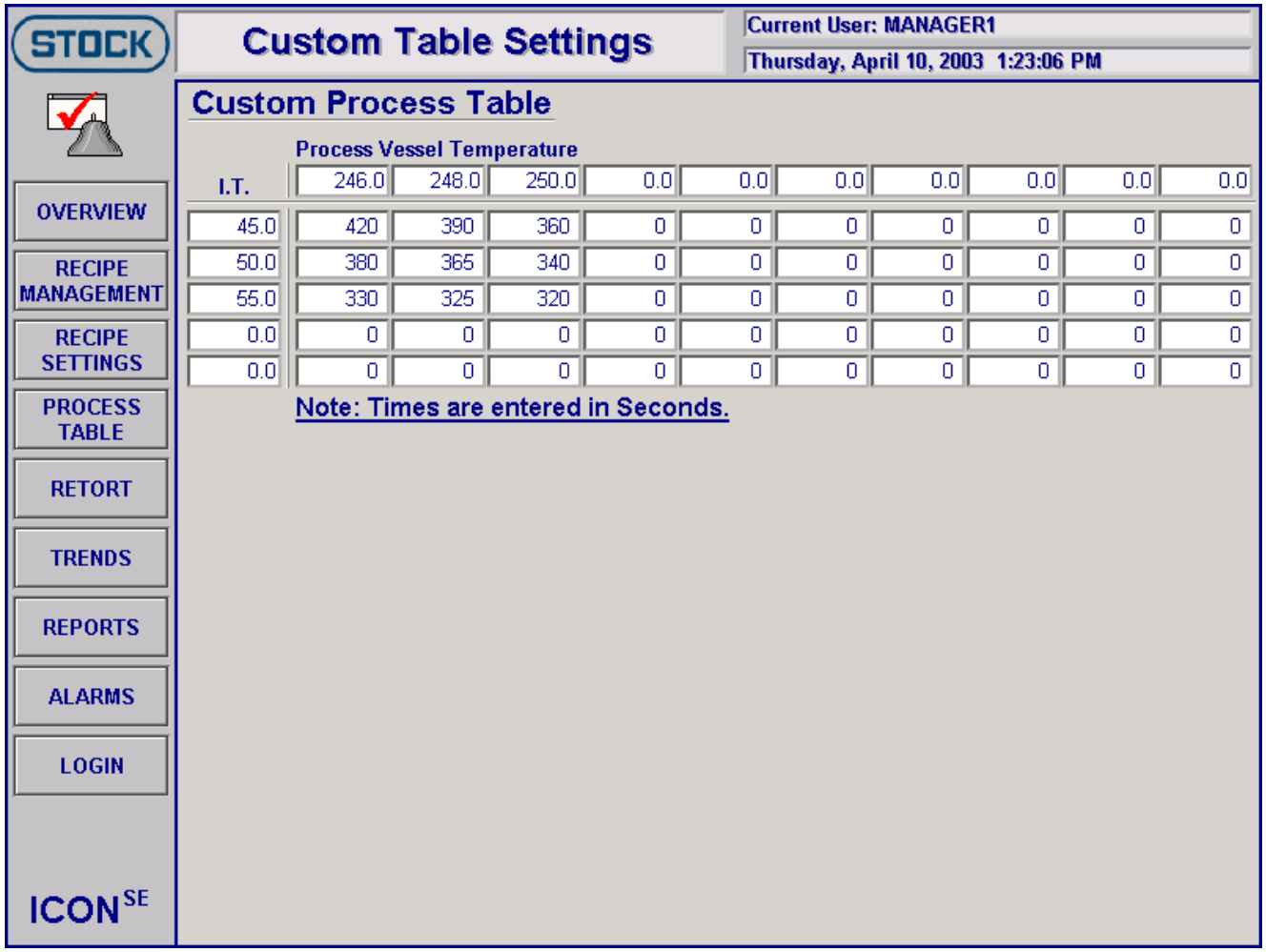


Fig 7.8

Step 9 - Update Recipe - See Section 6(e) for procedure

Step 10 - Register Recipe - See Section 6(f) for procedure

SECTION 8 - RUNNING A PROCESS

a. General

- See START UP & LOGIN PROCEDURE – **See SECTION 3** – Login as operator or manager

b. Example Full Water Immersion Process

- **This is an example of a process that assumes there is a recipe loaded and ready to run. See Section 6(b) to *Load* a recipe.**
- The *Retort Screen* is used throughout the operation of a normal process run.

Color Key	Function
Red	Indicates that the item is not active or on
Green	Indicates that the item is active or on
Yellow	Water Level

Starting the Process

- STEP1 - Go to the *"RETORT"* screen and Select the *"START"* button.

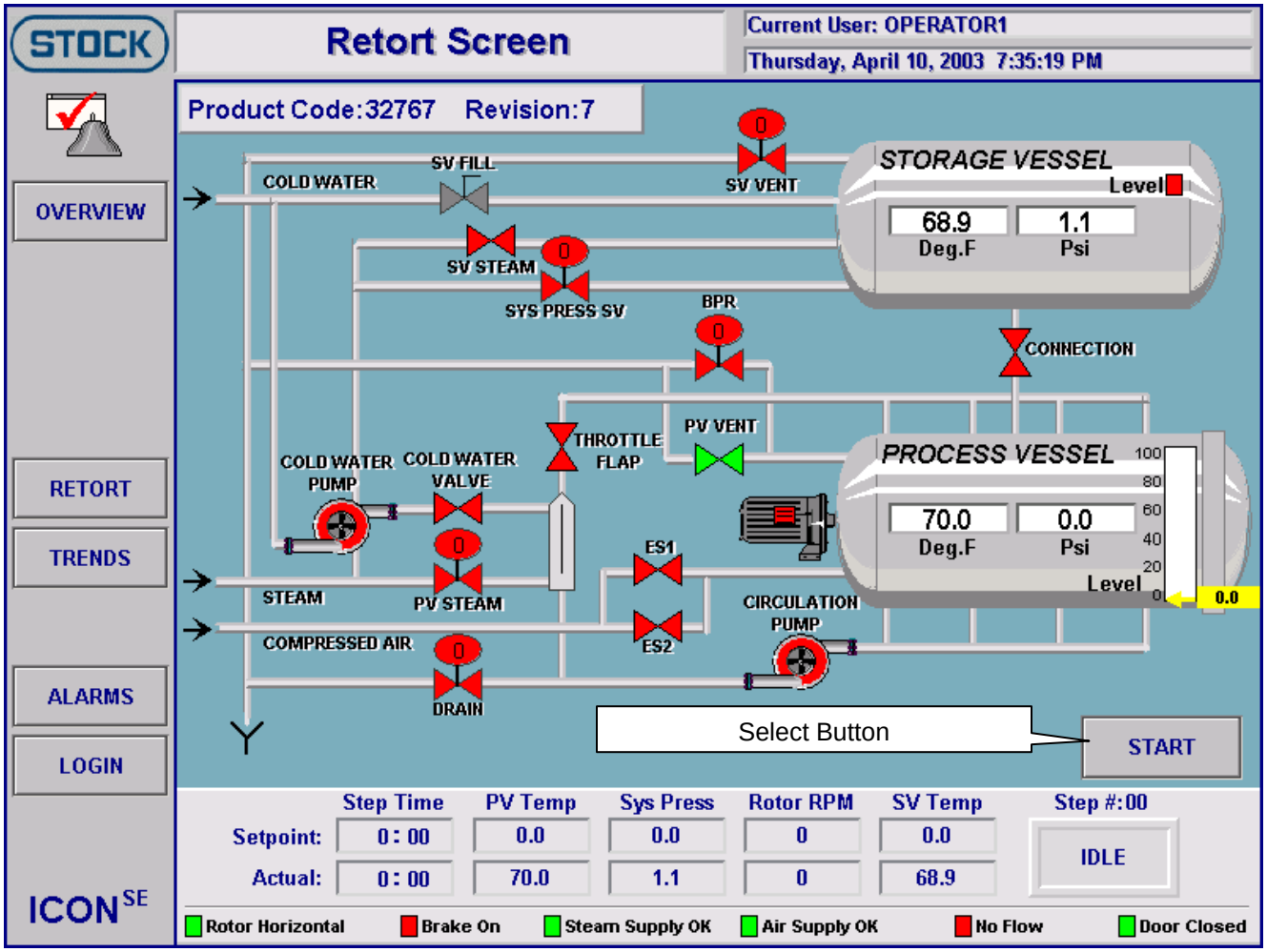


Fig 8.1

NOTE: Product Number will not change on screen until *Start* button is selected

- STEP 2 – User Name and Password are required
- STEP 3 – Enter the cook number by use of *key pad* screen. (Fig 5.4)
  - Enter a *Cook Number* (valid range is 1 through 32767).
- STEP 4 – Select the *"YES"* button to confirm starting the cook.

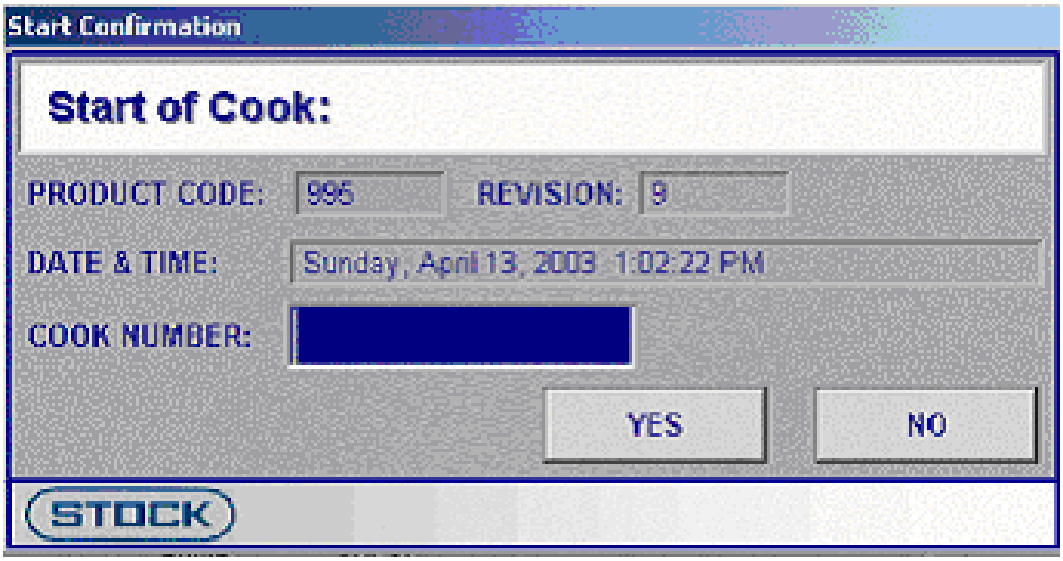


Fig 8.2

NOTE
It is the responsibility of the operator to verify that the **Product Code entered corresponds to the Product being processed**
Cook number = Maximum of 5 digits long should always be assigned.
Product Code and Revision Number will update once the *Start* button is selected

Heating Storage Vessel (HSV) ≤ 212 Deg F - No Pressure Control

- HSV Step in progress, Storage Vessel **(SV)** temperature ≤ 212 Deg F
- No Storage Vessel Pressure control is used in this step, **SV** vent valve is 100% open
- Analog valves and level indicators indicate the % open on the display
- Digital Valves and motors are on or off

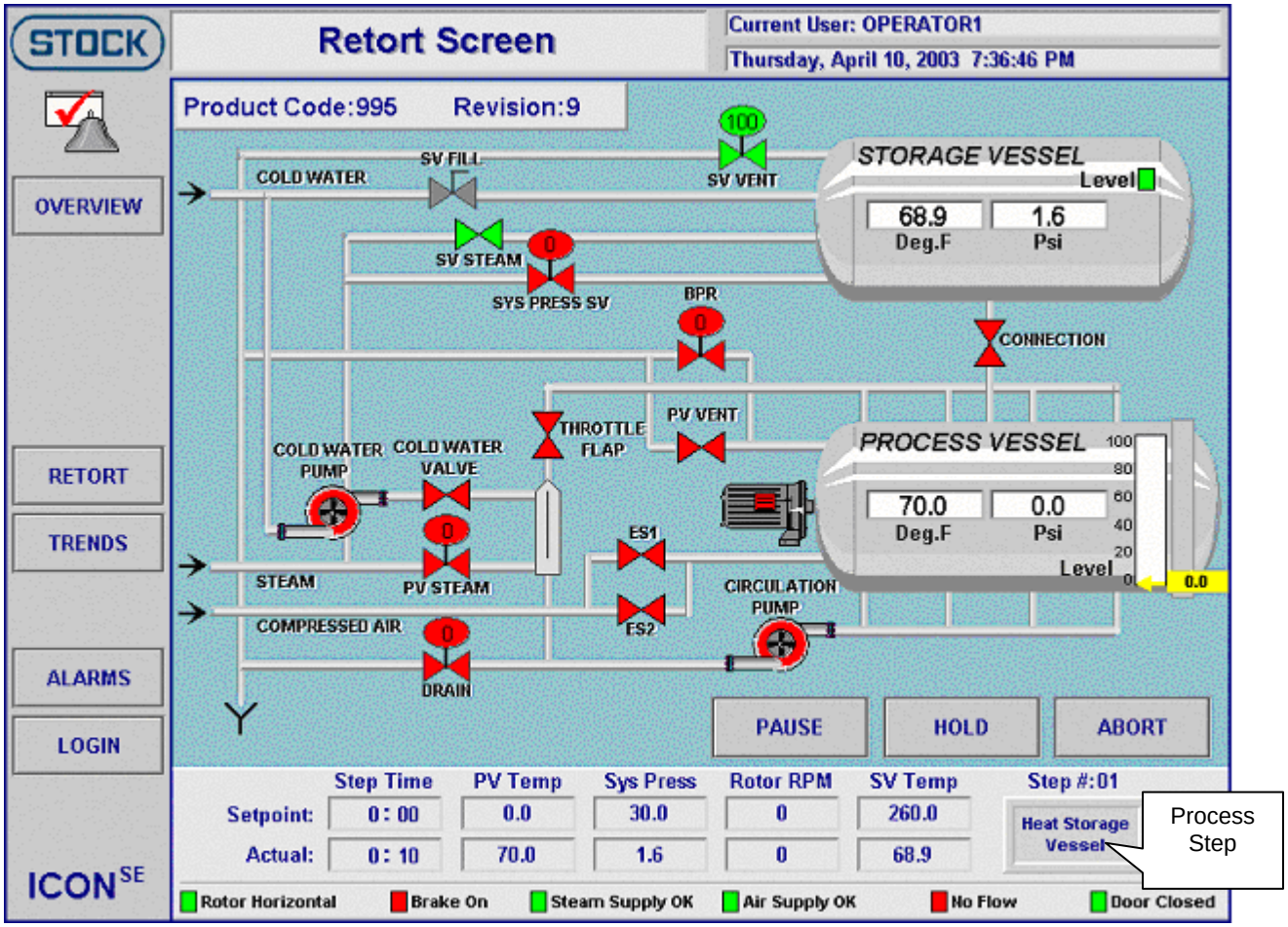


Fig 8.3

Button	Function
PAUSE	Stops the process and puts valves and pumps in off position. Stops accumulated time
HOLD	Keeps process in current step in definitely
ABORT	Stops process completely

Screen Display for HSV	Description	Status
SV STEAM	Digital - Steam to preheat Storage Vessel	Icon is green (on)
SV VENT	Analog -Storage Vessel Vent	Shows actual % open
STORAGE VESSEL Level	Digital - Water Level Sensor	Sensor is green (on)
STORAGE VESSEL Fill Valve	Manual - Fills SV with Cold Water	-
PROCESS VESSEL Level	Analog - Water Level Sensor	Shows actual %
Rotor Horizontal	Rotor is in horizontal position	Sensor is green (on)
Steam Supply OK	Steam supply is adequate	Sensor is green (on)
Air Supply OK	Air is adequate	Sensor is green (on)
Door OK	Door safety switch is engaged	Sensor is green (on)
Set Points & Actual	Shown for Time , Pressure and Temperature	-

Heating Storage Vessel (HSV) ≥ 212 Deg F – Pressure Control

- HSV Step in progress, Storage vessel ≥ 212 Deg F
- Storage Vessel is pressure controlled in this portion of HSV

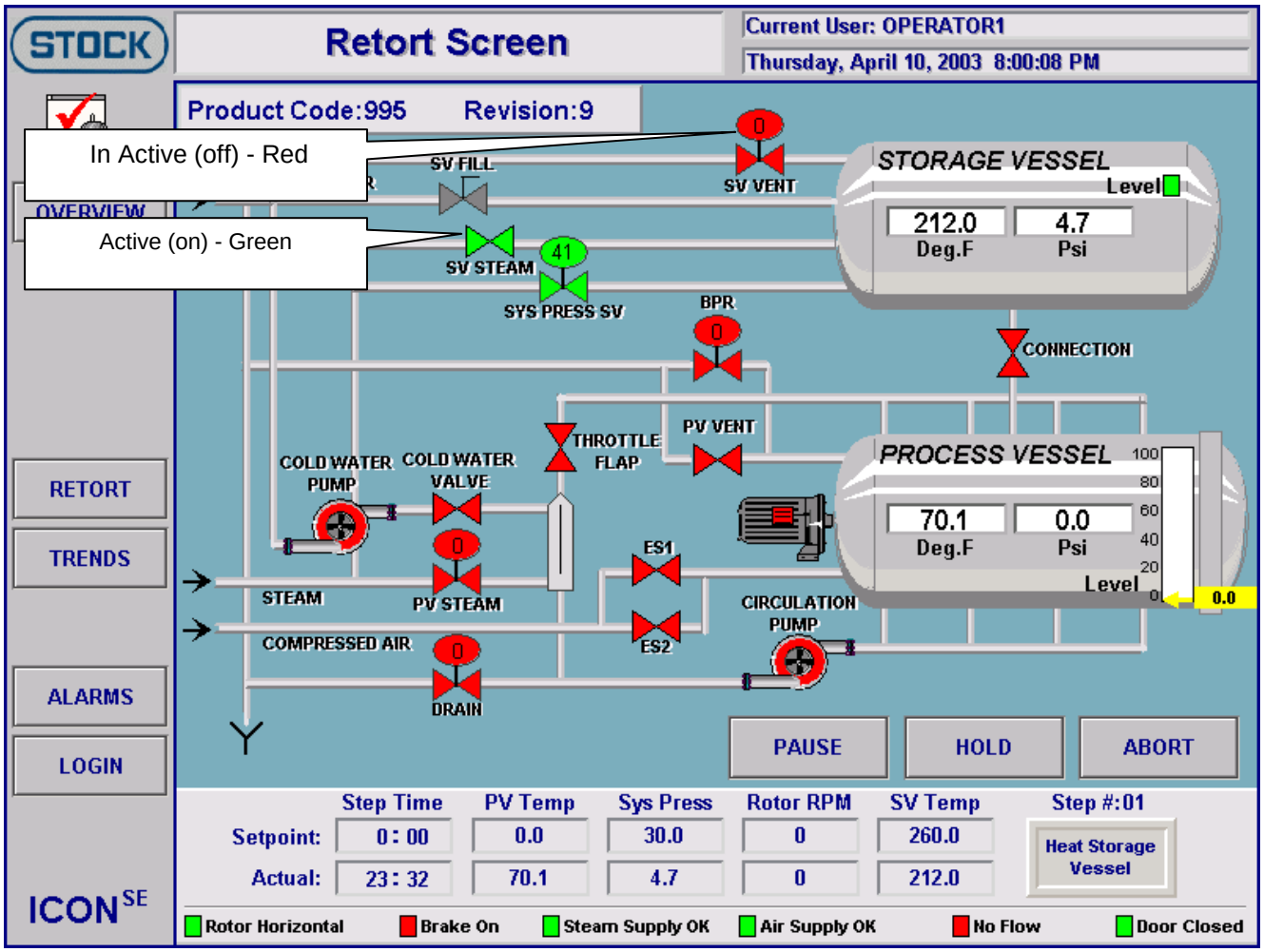


Fig 8.4

Display for HSV Pressure Control	Description	Status
SV STEAM	Digital - Steam to preheat Storage Vessel	Icon is green (on)
SYS PRESS	System Pressure Regulation Valve	Shows % open
STORAGE VESSEL Level	Digital - Water Level Sensor	Sensor is green (on)
Rotor Horizontal	Digital - Rotor is in horizontal position	Sensor is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Sensor is green (on)
Air Supply OK	Digital - Air is adequate	Sensor is green (on)
Door OK	Digital - Door safety switch is engaged	Sensor is green (on)
Set Points & Actual	Shown for Time , Pressure and Temperature	-

Heating Storage Vessel End - Prompt for IT

- If entry of an *Initial Temperature* is set in *Recipe Settings*, a button will appear on *MAIN MENU* for entering the *INITIAL TEMP* value before process can begin.
- STEP1 - Select the *INITIAL TEMP* button.

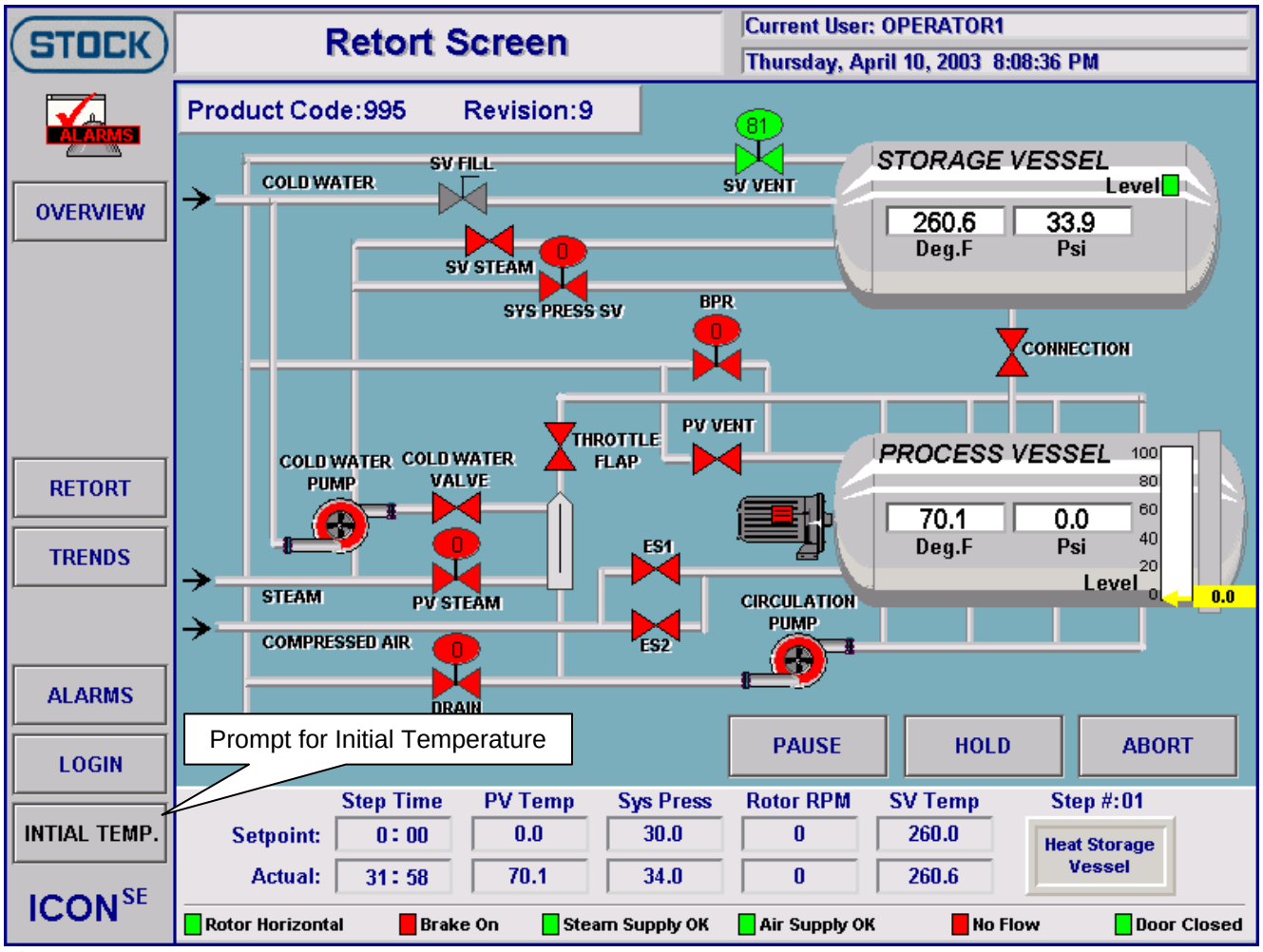
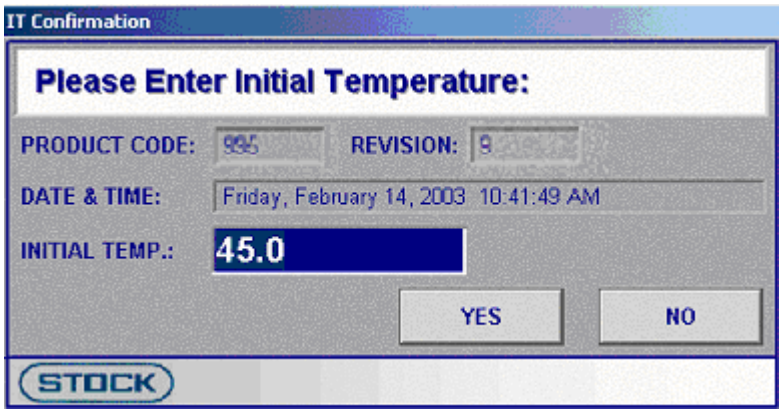


Fig 8.5

- STEP – 2 Operator will be prompted for user name and password, enter on *Keyboard* (Fig 5.2)
- STEP – 3 Enter the product *Initial Temperature* on *keypad* and Select *enter* (Fig 5.3)
- STEP – 4 Select *YES* button on *IT Confirmation* to accept the entry. (Fig. 5.18)



(Fig 8.6)

Sterilization 1 - In Progress

- Process in now in operation and the retort is in Vent.

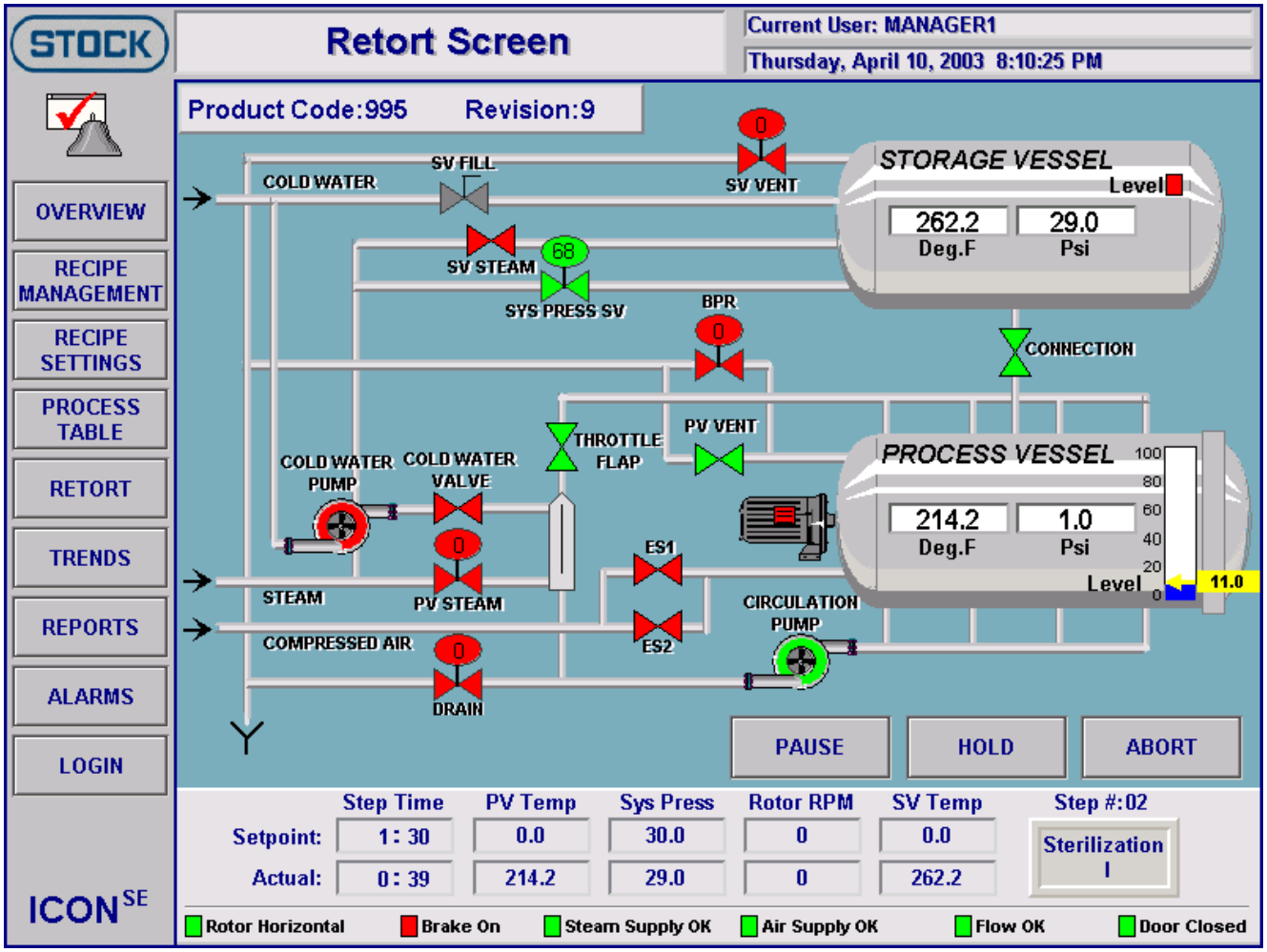


Fig 8.6

Display for Sterilization I	Description	Status
SYS Press SV	Analog - System pressure Valve Storage Vessel	Shows % open
PV Vent	Digital - Process Vessel Vent	Icon is green (on)
Throttle Flap	Digital - Throttle Flap Valve	Icon is green (on)
Connection	Digital - Connector Valve	Icon is green (on)
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Level	Water Level	Shows % open
Rotor “B” Position	Digital - Rotor is in custom location “B”	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Sterilization I	Current step is Sterilization 1 (Vent)	-
Set Points & Actual	Shown for Time , Pressure and Temperature	Current status

Sterilization 2 - In Progress

- Sterilization 2 is used to bring the Process Vessel up to set point temperature, pressure and rotation.

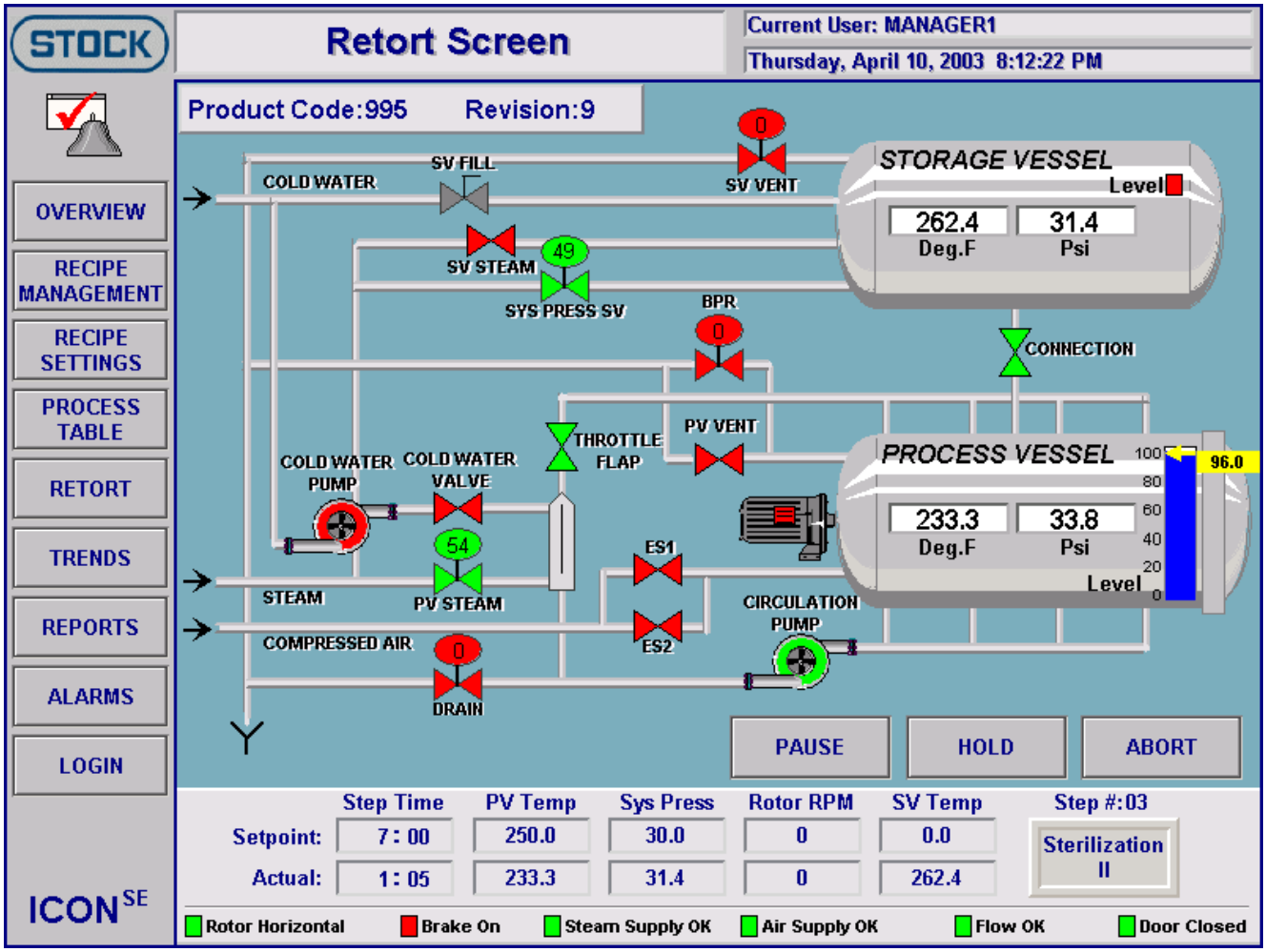


Fig 8.8

Display for SII	Description	Status
SYS Press SV	Analog - System pressure Valve Storage Vessel	Shows % open
Process Vessel Steam	Analog - Process Vessel Heating Valve is on	Shows % open
Throttle Flap	Digital - Throttle Flap Valve	Icon is green (on)
Connection	Digital - Connector Valve	Icon is green (on)
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Level	Water Level	Shows % open
Rotor Horizontal	Digital - Rotor is in horizontal	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Sterilization II	Current step is Sterilization II (Come Up)	-
Set Points & Actual	Shown for Time , Pressure and Temperature	Current status

Sterilization 3 - In Progress

- Process in now in cook phase and the retort is at process temperature.
- During S3, if *User Inputs* are required, a button will appear to enter the inputs. (Fig 5.24)
- Press the *USER INPUT* button.

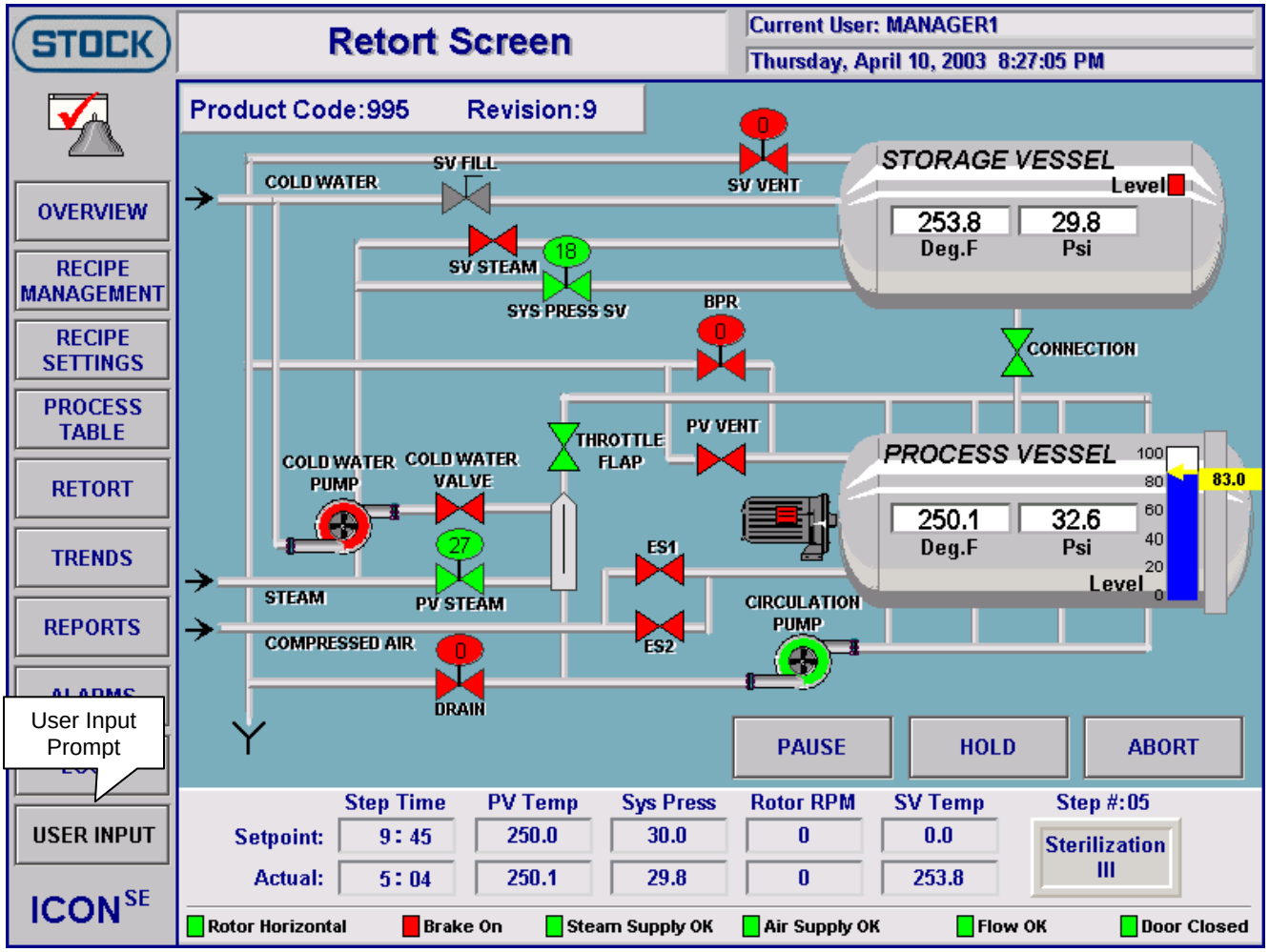


Fig 8.9

Display for SIII	Description	Status
SYS Press SV	Analog - System pressure Valve Storage Vessel	Shows % open
Process Vessel Steam	Analog - Process Vessel Heating Valve is on	Shows % open
Throttle Flap	Digital - Throttle Flap Valve	Icon is green (on)
Connection	Digital - Connector Valve	Icon is green (on)
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Process Vessel Level	Analog - Water Level in Process Vessel	Shows % open
Rotor “B” Position	Digital - Rotor is in custom location “B”	Icon is green (on)
Brake off	Rotor motor brake is off and motor is on	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Sterilization III	Current step is Sterilization III (Cook)	-
Set Points & Actual	Shown for Time , Pressure and Temperature	Current status

Sterilization 3 - In Progress – User Inputs

- *User Input Confirmation* will appear. (Fig 5.24)
- User Name and Password are required.
- After completing *User Input* entries, Select the *Confirm* button.

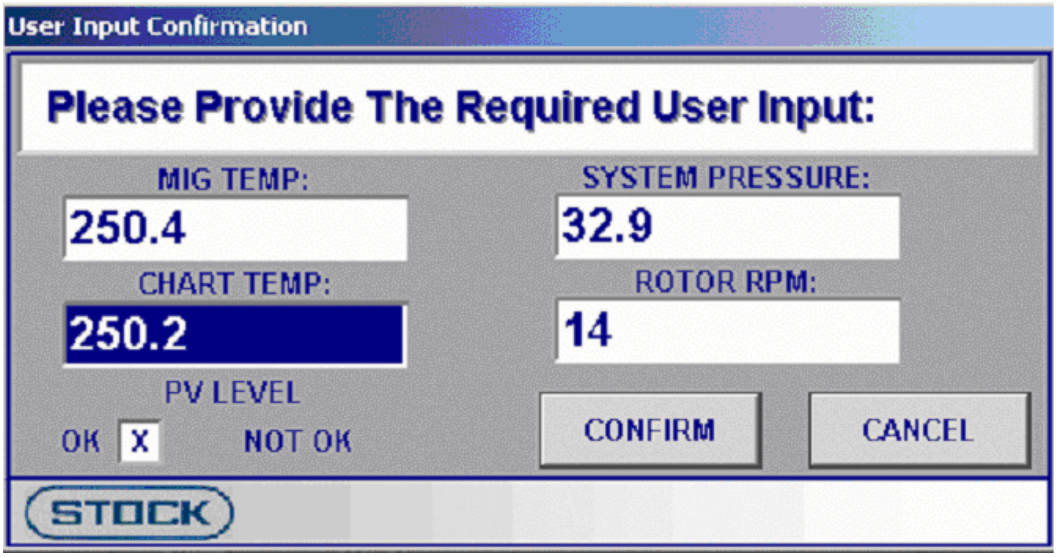
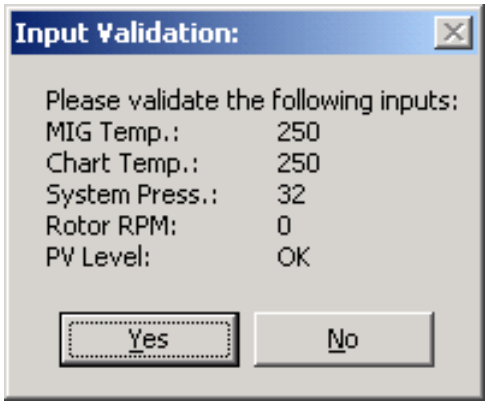


Fig 8.10

Button	Function
Confirm	Allows data to be entered into the recipe
Cancel	Exits Screen

- *Input Validation* screen will appear after completing *User Input* entries, if entries are correct Select the *Yes* button. Fig 5.28



LOW INITIAL TEMPERATURE or RETORT TEMPERATURE

If I.T. or R.T. information for a particular retort batch is below the minimum tolerances provided in the table, or the temperatures for the MIG are LOWER than the temperature for the Chart, the ICON SE Retort PC will activate an alarm. At the end of the run the corresponding alarm message documenting the deviation will be noted on the Sterilization Record.
Consult with your process authority for a proper procedure to use in the event of a low R.T. or low I.T. deviation.

Cool 1 - In Progress

- Used to recover hot water to the Storage Vessel.
- System Pressure is controlled in the Storage Vessel.
- Valve changes and pump output changes will be noted on the screen.

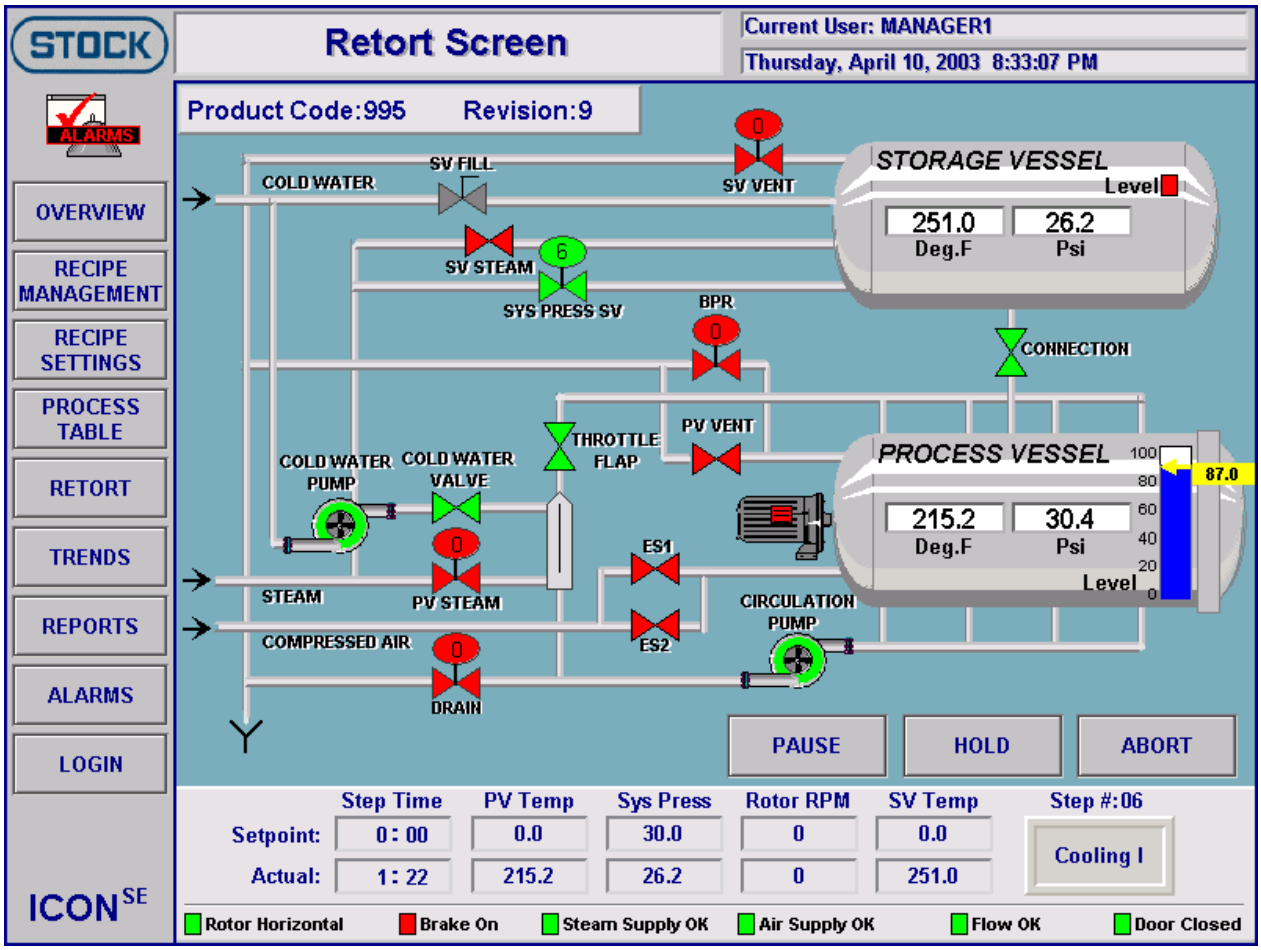


Fig 8.11

Display for Cool I	Description	Status
SYS Press SV	Analog - System pressure Valve Storage Vessel	Shows % open
SV Vent	Analog - Storage Vessel Pressure Vent	Shows % open
Cold Water Valve	Digital - Cold Water Supply Valve	Icon is green (on)
Cold Water Pump	Digital - Cold water booster pump	Icon is green (on)
Throttle Flap	Digital - Throttle Flap Valve	Icon is green (on)
Connection	Digital - Connector between Storage & Process Vessel	Icon is green (on)
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Process Vessel Level	Analog - Water Level in Process Vessel	Shows % open
Rotor “B” Position	Digital - Rotor is in custom location “B”	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Cool 1	Current step is Cool1 – Recover process water to storage vessel	-
Set Points & Actual	Shown for Time , Pressure and Temperature	

Cool 2 - In Progress

- Storage Vessel is full and now water diverts to drain
- Connection valve closes and valve outputs change.
- Other operational changes will be noted.

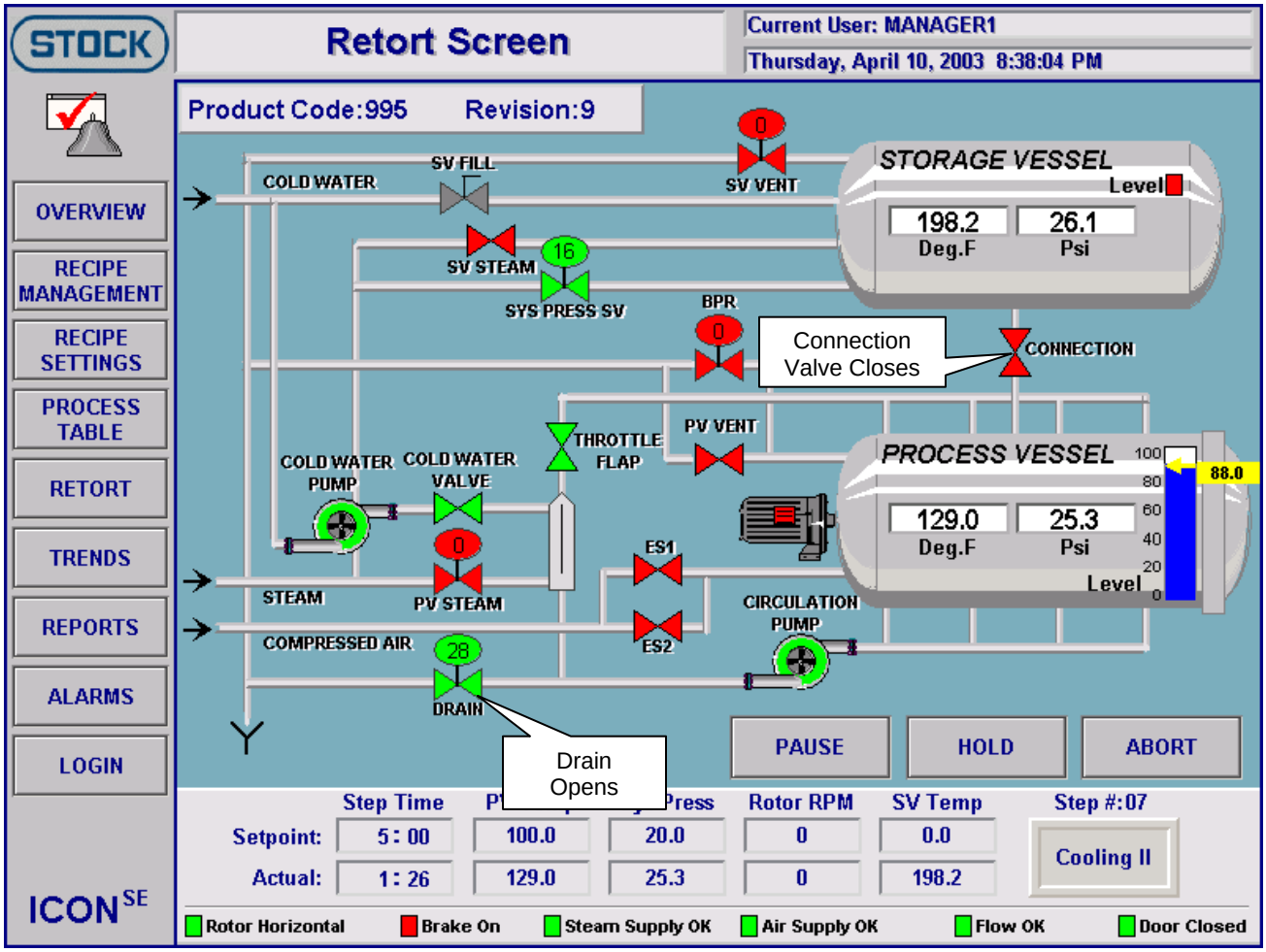


Fig 8.12

Display for Cool II	Description	Status
SYS Press SV	Analog - System pressure Valve Storage Vessel	Shows % open
Storage Vessel Level	Water level in the storage vessel	Icon is green (on) Full
Cold Water Valve	Digital - Cold Water Supply Valve	Icon is green (on)
Cold Water Pump	Digital - Cold water booster pump	Icon is green (on)
Throttle Flap	Digital - Throttle Flap Valve	Icon is green (on)
Drain	Analog - Drain Valve	Icon is green (on)
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Process Vessel Level	Analog - Water Level in Process Vessel	Shows % open
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Cool II	Current step is Cool II	-
Set Points & Actual	Shown for Time , Pressure and Temperature	

Drain - In Progress

- Cooling is completed; the retort has reached the setpoint temperature.
- Drain opens and Storage Vessel begins heating
- Valves change to off and pump outputs change.

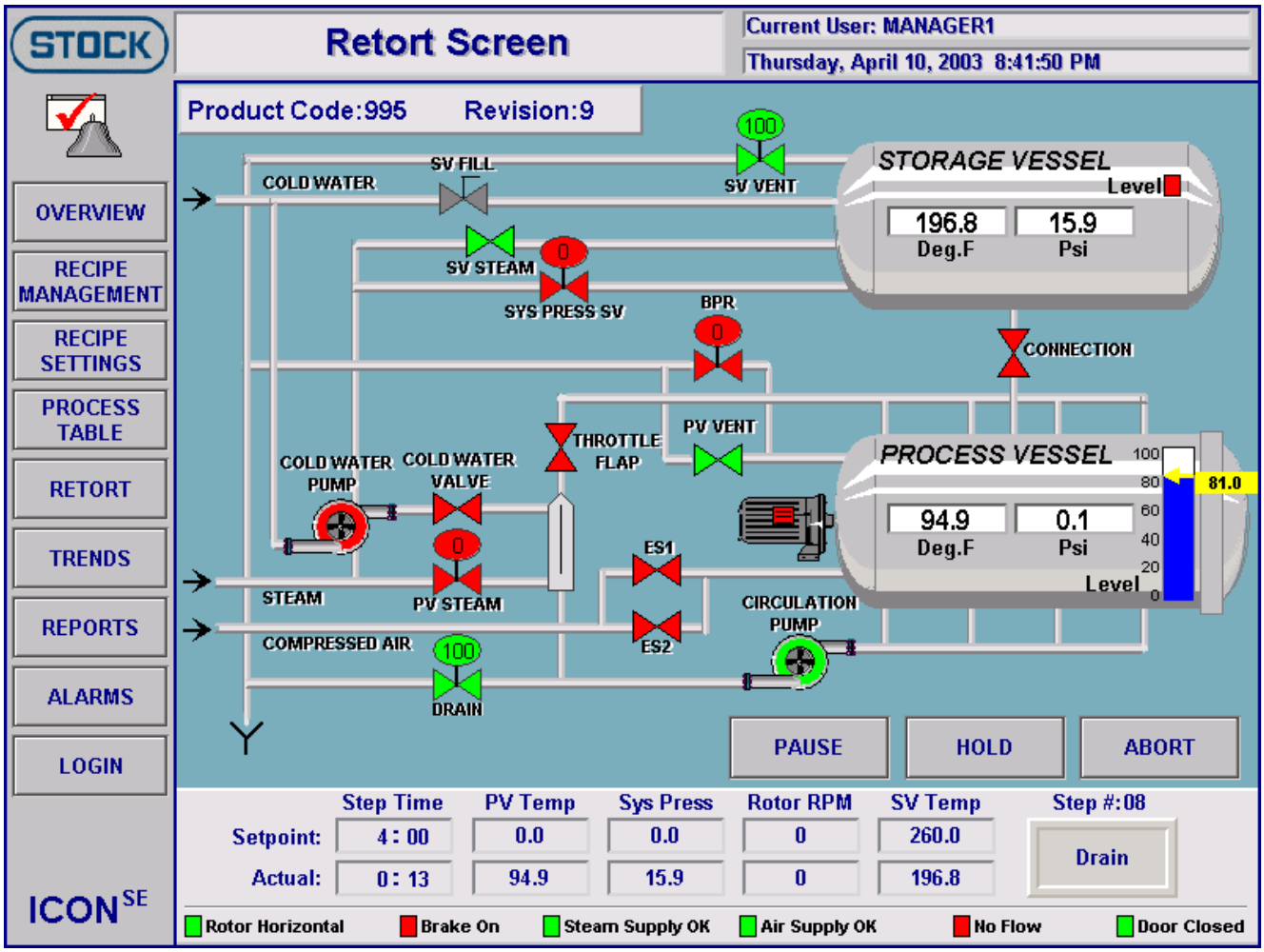


Fig 8.13

Display for Drain	Description	Status
SYS Press SV	Analog - System pressure Valve Storage Vessel	Shows % open
Storage Vessel Level	Digital - Water level in the storage vessel	Icon is green (on) Full
PV Vent	Digital - Process Vessel Vent	Icon is green (on)
Drain	Analog - Drain Valve	Shows % open
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Process Vessel Level	Analog - Water Level in Process Vessel	Shows % open
Rotor Horizontal	Digital - Rotor is in horizontal Unload position	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Drain	Current step is Drain	-
Set Points & Actual	Shown for Time , Pressure and Temperature	

Process Pause - In Progress

- Pausing the process stops the cook in the current step, turning off all control output devices and stopping the accumulated step time.
- Valve & Pump outputs change to off.
- Storage Vessel vent modulates to maintain pressure control
- When the process is in *PAUSE*, you can go forward or backward step-by-step in the process using the *Previous Step* or *Next Step* buttons.
- Select *Remove Pause* button to start process again. Prompt for user name and password will appear

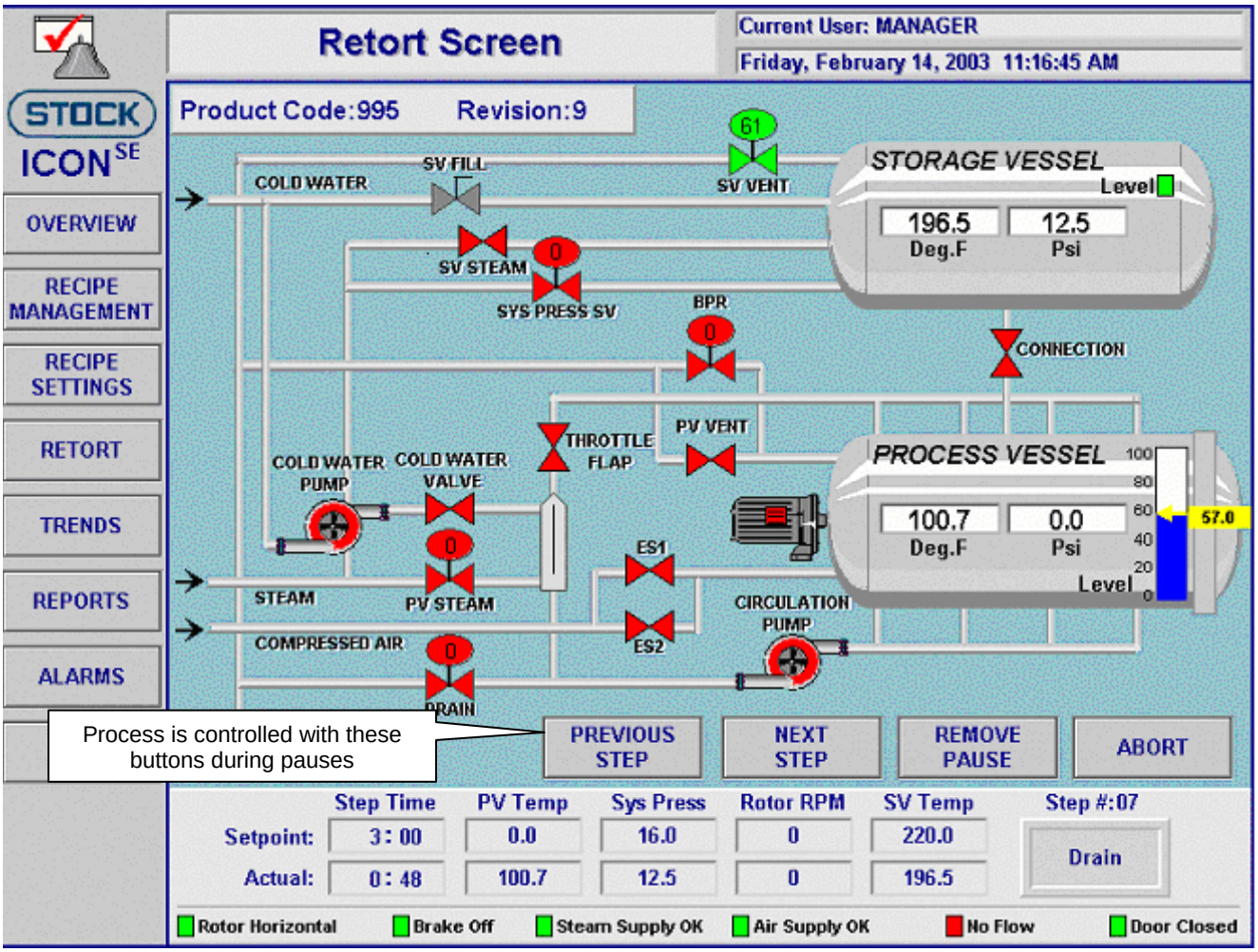


Fig 8.13

Display for Pause	Description	Status
SV Vent	Analog - Storage Vessel Vent Opens	Shows % open
Storage Vessel Level	Digital - Water level in the storage vessel	Icon is green (on) Full
Process Vessel Level	Analog - Water Level in Process Vessel	Shows % open
Rotor Horizontal	Digital - Rotor is in horizontal position	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Set Points & Actual	Shown for Time , Pressure and Temperature	

Process Hold - In Progress

- Holding the process keeps the cook in the current step
- Accumulated step time continues to run.
- Valves, pumps and other outputs remain in the run position.

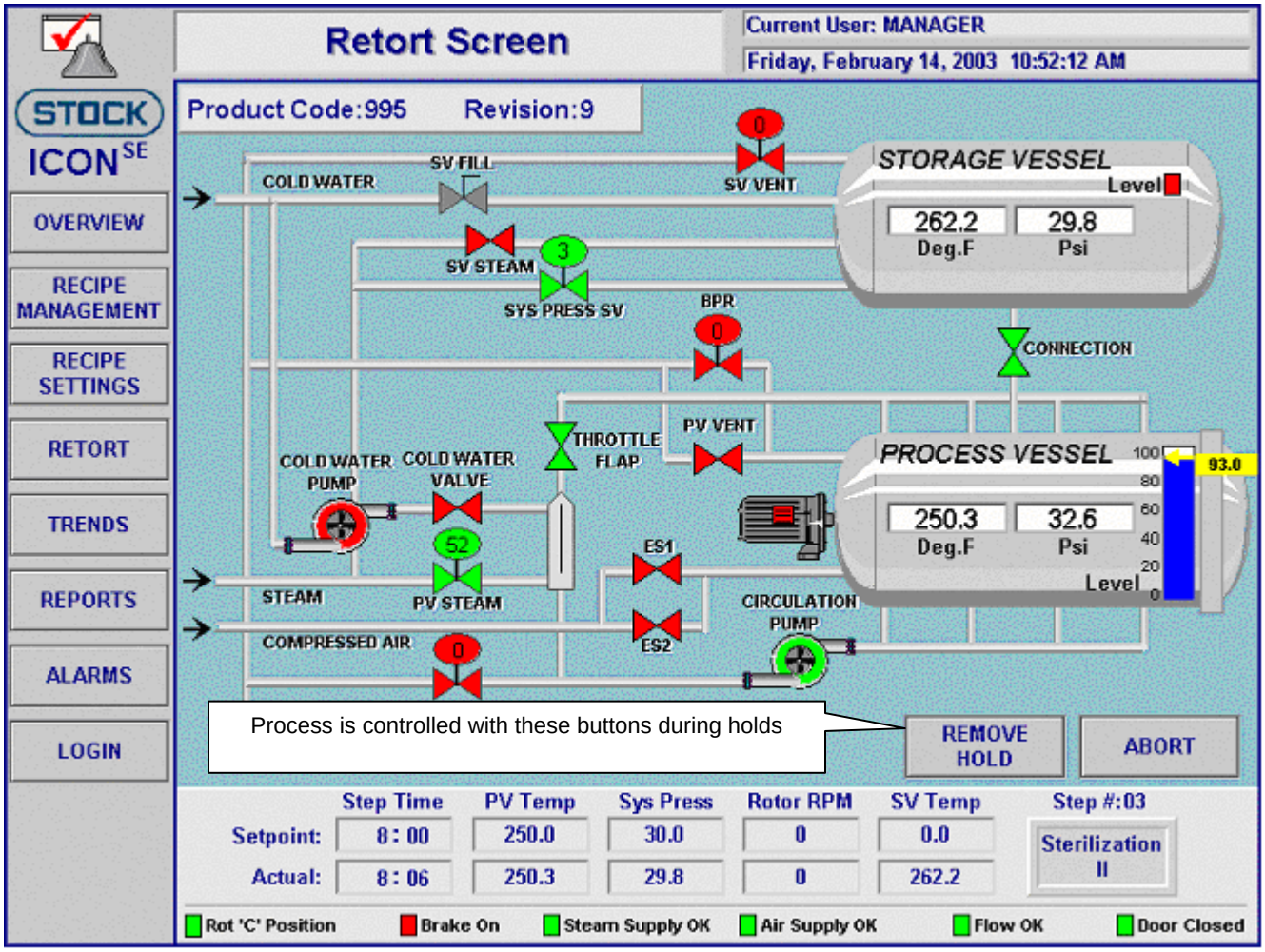


Fig 8.14

Display for Hold	Description	Status
SYS Press SV	Analog - System pressure Storage Vessel	Shows % open
Process Vessel Level	Digital - Water Level in Process Vessel	Shows % open
Connection	Digital - Connector Valve	Icon is green (on)
Throttle Flap	Digital - Throttle Flap Valve	Icon is green (on)
Process Vessel Steam	Analog - Process Vessel Heating Valve is on	Shows % open
Circulation Pump	Digital - Circulation Pump	Icon is green (on)
Rotor C Position	Digital - Rotor is in custom position	Icon is green (on)
Steam Supply OK	Digital - Steam supply is adequate	Icon is green (on)
Air Supply OK	Digital - Air is adequate	Icon is green (on)
Flow OK	Digital - Flow of water is adequate	Icon is green (on)
Door OK	Digital - Door safety switch is engaged	Icon is green (on)
Set Points & Actual	Shown for Time , Pressure and Temperature	

Remove Process Hold - In Progress

- Select *Remove Hold* button on *Retort Screen* when ready to continue process steps again. (Fig 8.14)
- Prompts for User name and Password will appear and must be entered on *Keyboard* before process will continue (Fig 5.3)
- *Remove Hold Confirmation* will appear Select the *Yes* button

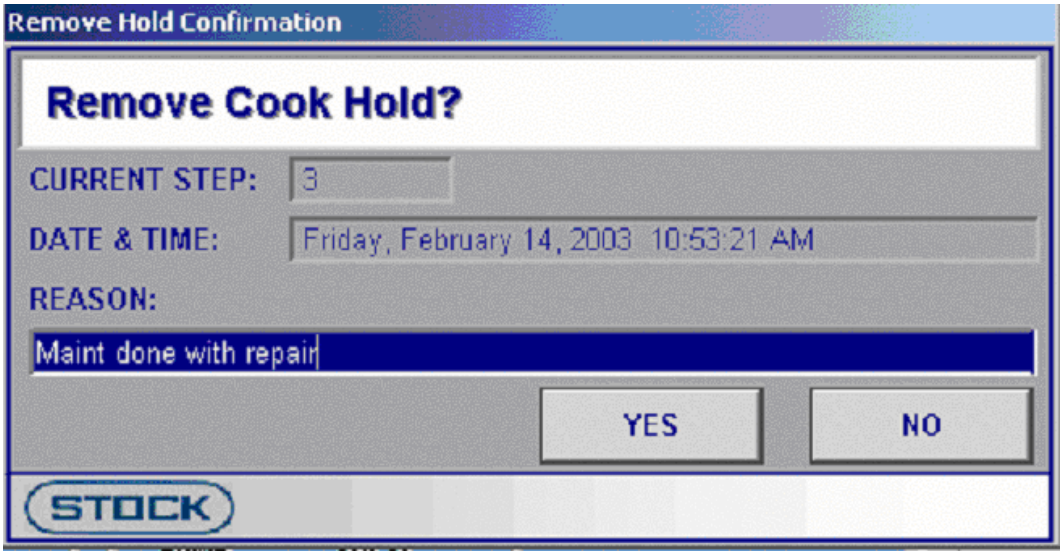


Fig 8.15

Field or Button	Function
Yes	Allows process to continue from point of hold and finish any remaining time in the step
No	Keeps the process in the current step
Reason	Dialog box for explanation; touch field to call up key board

Trends – Viewing

General

- Selected parameters can be viewed in real time at any point during the process.

Select Trends Option

- *Trends* – Select button on *Main Menu* at left hand column of *Retort* screen.

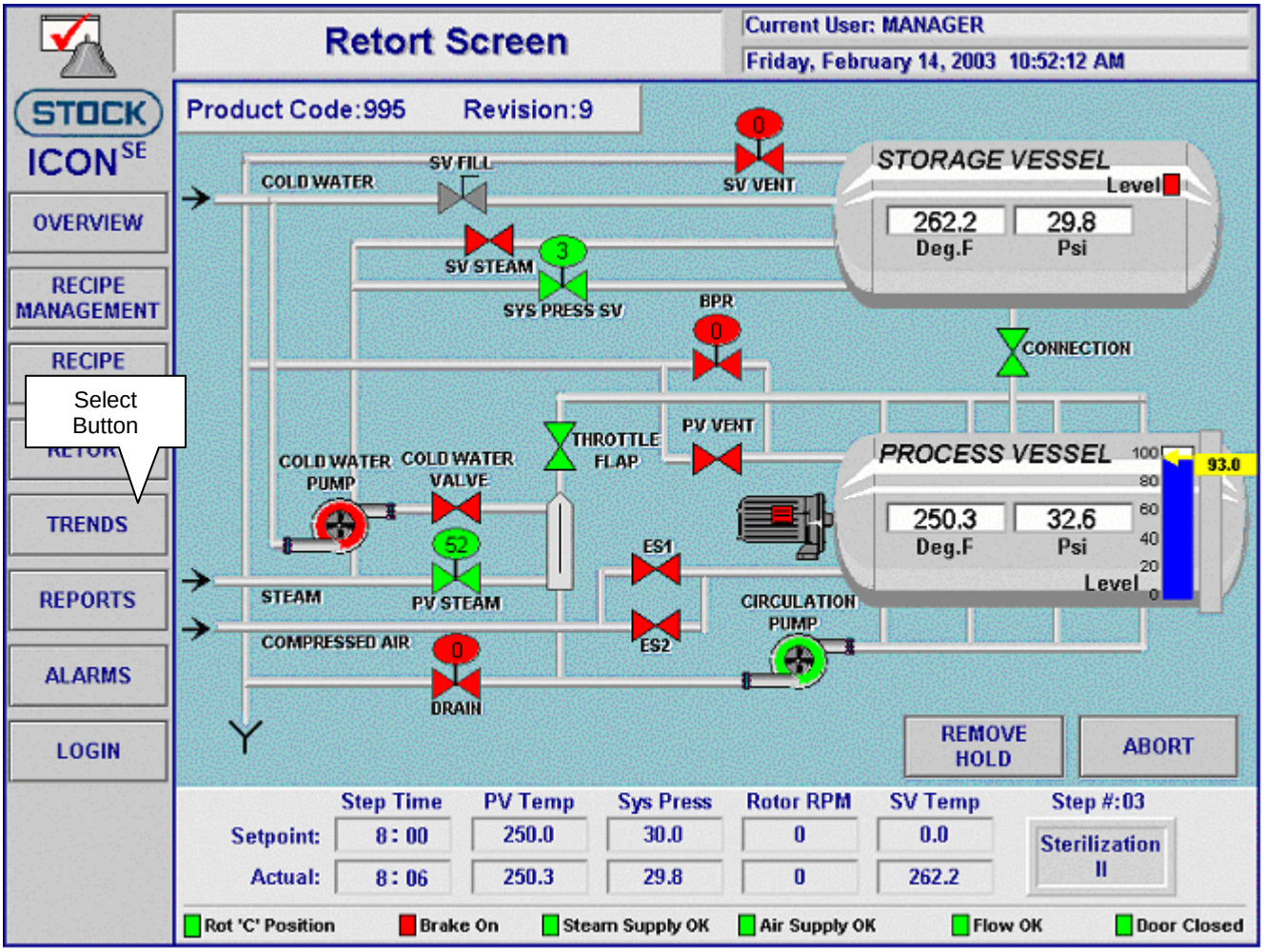


Fig 8.16

View Trending In Progress

- *Trending Screen* will appear.
  - Select the desired line at the point you want to view and a value will appear.
  - To view actual current value see data at the bottom of screen

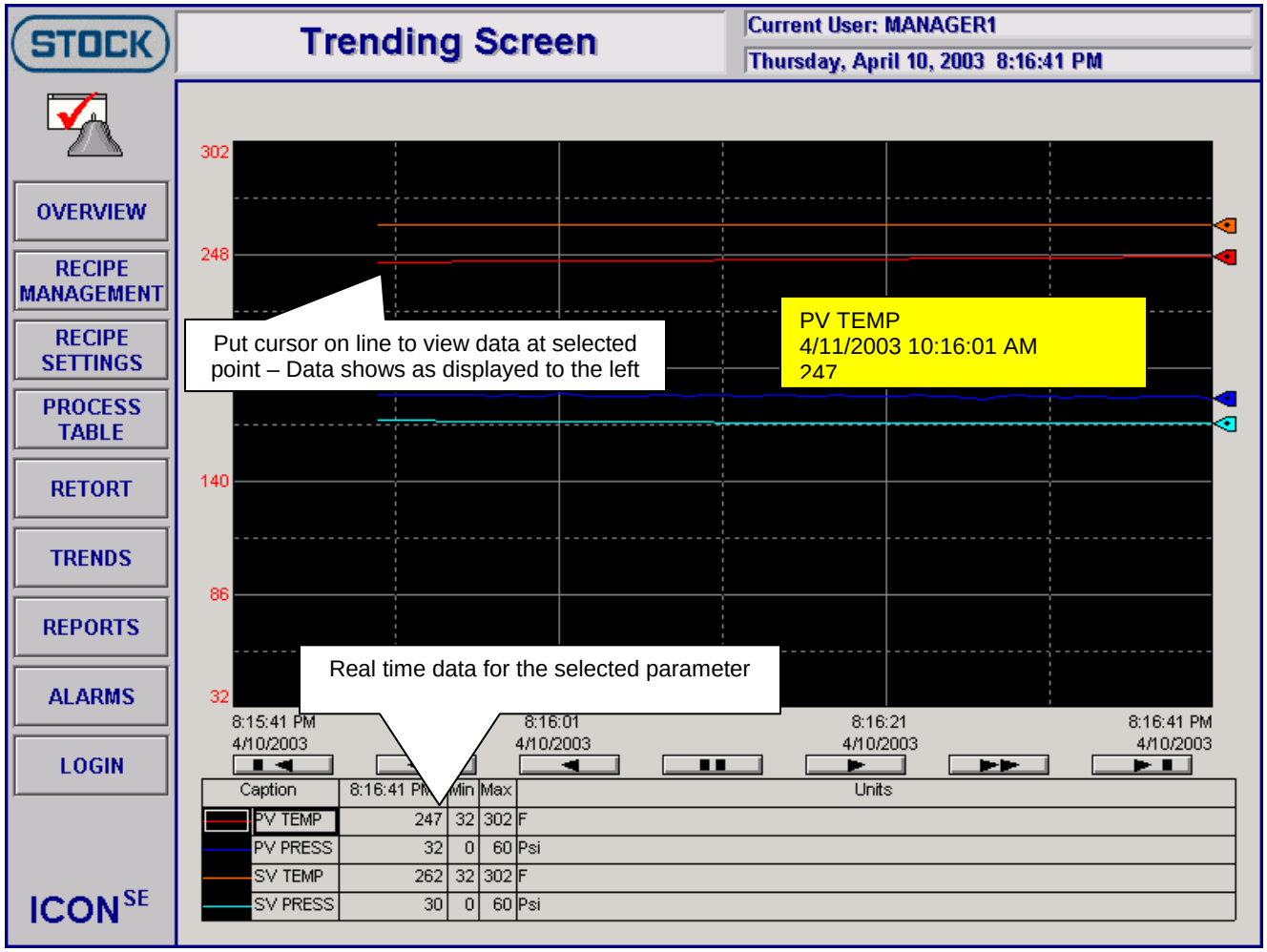


Fig 8.17

Appendix IV: Retort Shipment Information

Retort Shipment to SOPAKCO: May 2002

Stock 1100 Retort SERIAL #:64026

Control Cabinet with PLC 5/10 controller with following modules:

- Power Module
- DC Input Module
- DC Output Module
- Analog Input Module
- Analog Output Module

XYCOM COMPUTER with

- Network Card
- AB KT Card

Backup Power Supply

Oxidata Printer

Woods Variable Frequency Drive controller, 5 HP, 230 V, 3 PH

Quick Disconnect Power Cable

Quick Disconnect Low Power and Signal Cable

Retort process vessel and storage vessel with all control valves, pumps and piping including:

SV level gauge
Pressure Safety Valves (2)
Pressure Transmitters (2)
Strobe Light
Rotor Proximity Switches (3)
Level Gage PV with sight glass
Anderson DART serial#: 9826326
Accutech RTD PV
Steam Pressure Alarm Switch
Minco RTD SV
Taylor Chart Recorder
MIG

Retort crates (8)

Dollies (8)

Dolly Track

Retort Racks for Polymeric Tray (96)

Retort Plates (5)

Pipe Wrench plus bar

Man Hole Cover

Mosol Water Conditioner

The following manuals and misc items were shipped with the retort:

Xycom manual and disks

DOS User guide and disk

Touch screen Driver manual and disk

Monitor Mouse Manual and Disk
Two fuses
Anderson Manual and Certificate
Woods VFD Manual
Electrical Drawing
Installation Qualification Document
QEMM software
Stock Manuals (3)
ICON2000 Operator Manual
Chart Recorder Manual
Chart Recorder Charts (1 box)
Ink bottles for Chart Recorder
Woods Box:
- Pulleys, bolts and split ring

Parts Box
- Lift handle
- Yellow Locking Bracket
- Rotor Extracting Tools
- Bolts
- Brash Valve
- Grease Cartridge 2, #0900160
- Silicon Paste, #0901010
- Viscogen kl 130, #0900250
- Seal Kit #1002063
- Seal Kit #1002066
- Seal Kit #1002067
- Break pins (5), #1000091

Retort Shipment to SOPAKCO: April 2003
Shipping Address: 320 South Broad Street, Bennettsville, SC

Stock 1100 Retorts with ICON 2000 version 4 control system
Serial Number 39883

Control Cabinet with SLC505 controller with following modules:
- ❑ Analog Input (1)
- ❑ Analog Output (2)
- ❑ DC Input (2)
- ❑ DC Output (2)

Allen Bradley Model 6181 Computer with following licensed software and hardware options:
- ❑ Windows 2000 Professional Operating System
- ❑ Microsoft Office 2000 Pro
- ❑ Microsoft SQL Server 2000 Personal Edition
- ❑ RS View SE Client
- ❑ RS View SE Server 25
- ❑ RS Linx for RS View
- ❑ RS SQL Professional 1500
- ❑ ICON 2000 version 4 software application
- ❑ HDD: 76.6 GB
- ❑ Processor: Pentium III
- ❑ Memory: 256 MB
- ❑ DVD
- ❑ 3.5" Floppy Drive
- ❑ I/O cards (2)
- ❑ UPS

Retorts process vessel and storage vessel with all control valves, pumps and piping including:
- ❑ SV level gauge
- ❑ Pressure Safety Valves (2)
- ❑ Ascroft Pressure Transmitter SV (0-100 psig range)
- ❑ LogTec Pressure Transmitter PV (0-60 psig)
- ❑ Strobe Light
- ❑ Rotor Proximity Switches (3)
- ❑ Endress & Hauser Analog Level Gauge PV with Sight Glass
- ❑ Minco Temperature Transmitters (2)
- ❑ Steam Pressure Alarm Switch
- ❑ ABB Kent Taylor Fullscope ER/C Chart Recorder with one box of charts
- ❑ MIG with Hub
- ❑ Temperature Gauge SV
- ❑ Pressure Gauge PV
- ❑ ES Mode Valves
- ❑ Analog Drain Valve

Retort Crates with Bottom Plates (8):
Dolies (8)
Dolly Track
Top Plate Lift Handle
Retort Rigging Lift Hook (1per two retorts)
Retort Racks (0)
Documentation:
- ❑ Installation Validation Report
- ❑ Operation Manual
- ❑ Electrical Drawings
- ❑ Instruction Manual Chart Recorder

Retort Shipment to SOPAKCO: April 2003
Shipping Address: 320 South Broad Street, Bennettsville, SC

Stock 1100 Retorts with ICON 2000 version 4 control system
Serial Number 39992

Control Cabinet with SLC505 controller with following modules:
- ❑ Analog Input (1)
- ❑ Analog Output (2)
- ❑ DC Input (2)
- ❑ DC Output (2)

Allen Bradley Model 6181 Computer with following licensed software and hardware options:
- ❑ Windows 2000 Professional Operating System
- ❑ Microsoft Office 2000 Pro
- ❑ Microsoft SQL Server 2000 Personal Edition
- ❑ RS View SE Client
- ❑ RS View SE Server 25
- ❑ RS Linx for RS View
- ❑ RS SQL Professional 1500
- ❑ ICON 2000 version 4 software application
- ❑ HDD: 76.6 GB
- ❑ Processor: Pentium III
- ❑ Memory: 256 MB
- ❑ DVD
- ❑ 3.5" Floppy Drive
- ❑ I/O cards (2)
- ❑ UPS

Retorts process vessel and storage vessel with all control valves, pumps and piping including:
- ❑ SV level gauge
- ❑ Pressure Safety Valves (2)
- ❑ Ascroft Pressure Transmitter SV (0-100 psig range)
- ❑ LogTec Pressure Transmitter PV (0-60 psig)
- ❑ Strobe Light
- ❑ Rotor Proximity Switches (3)
- ❑ Endress & Hauser Analog Level Gauge PV with Sight Glass
- ❑ Minco Temperature Transmitters (2)
- ❑ Steam Pressure Alarm Switch
- ❑ ABB Kent Taylor Fullscope ER/C Chart Recorder with one box of charts
- ❑ MIG with Hub
- ❑ Temperature Gauge SV
- ❑ Pressure Gauge PV
- ❑ ES Mode Valves
- ❑ Analog Drain Valve

Retort Crates with Bottom Plates (8):
Dolies (8)
Dolly Track
Top Plate Lift Handle
Retort Rigging Lift Hook (1per two retorts)
Retort Racks (0)
Documentation:
- ❑ Installation Validation Report
- ❑ Operation Manual
- ❑ Electrical Drawings
- ❑ Instruction Manual Chart Recorder

Retort Shipment to SOPAKCO: April 2004
Shipping Address: 320 South Broad Street, Bennettsville, SC

Stock 1100 Retorts with ICON 2000 version 4 control system
Serial Number 39882

Control Cabinet with SLC505 controller with following modules:
- Analog Input (1)
- Analog Output (2)
- DC Input (2)
- DC Output (2)
- SLC-IP address: 208.211.240.183

Computer Dynamics PAC-OP Operator Interface (M930100184) (http://www.cdynamics.com/pacop.html) with following licensed software and hardware options:
- Windows 2000 Professional Operating System
- Microsoft Office XP-SBE
- Microsoft SQL Server 2000 Personal Edition
- RS View SE Client
- RS View SE Server 25
- RS Linx for RS View
- RS SQL Standard 1500
- ICON 2000 version 4 software application
- HDD: 18.6 GB
- Processor: Pentium III
- Memory: 515 MB
- DVD/CD-ROM
- 3.5" Floppy Drive
- I/O cards (2)
- UPS
- PC-IP Address: 208.211.240.182, Computer Name: PC882 , Workgroup/Domain: Workgroup

Retorts process vessel and storage vessel with all control valves, pumps and piping including:
- SV level gauge
- Pressure Safety Valves (2)
- Ascroft Pressure Transmitter SV (0-100 psig range)
- LogTec Pressure Transmitter PV (0-60 psig)
- Strobe Light
- Rotor Proximity Switches (3)
- Endress & Hauser Analog Level Gauge PV with Sight Glass
- Minco Temperature Transmitters (2)
- Steam Pressure Alarm Switch
- ABB Kent Taylor Fullscope ER/C Chart Recorder with one box of charts
- MIG with Hub
- Temperature Gauge SV
- Pressure Gauge PV
- ES Mode Valves
- Analog Drain Valve

Retort Rigging Lift Hook (1per two retorts)
Documentation:
- Installation Validation Report
- Operation Manual
- Electrical Drawings
- Instruction Manual Chart Recorder

Retort Shipment to SOPAKCO: April 2004
Shipping Address: 320 South Broad Street, Bennettsville, SC

Stock 1100 Retorts with ICON 2000 version 4 control system
Serial Number 39993

Control Cabinet with SLC505 controller with following modules:
- ❑ Analog Input (1)
- ❑ Analog Output (2)
- ❑ DC Input (2)
- ❑ DC Output (2)
- ❑ SLC-IP address: 208.211.240.192

Computer Dynamics PAC-OP Operator Interface (M930100190) with following licensed software and hardware options:
- ❑ Windows 2000 Professional Operating System
- ❑ Microsoft Office XP-SBE
- ❑ Microsoft SQL Server 2000 Personal Edition
- ❑ RS View SE Client
- ❑ RS View SE Server 25
- ❑ RS Linx for RS View
- ❑ RS SQL Standard 1500
- ❑ ICON 2000 version 4 software application
- ❑ HDD: 18.6 GB
- ❑ Processor: Pentium III
- ❑ Memory: 515 MB
- ❑ DVD/CD-ROM
- ❑ 3.5" Floppy Drive
- ❑ I/O cards (2)
- ❑ UPS
- ❑ PC-IP Address: 208.211.240.193, Computer Name: PC993 , Workgroup/Domain: Workgroup

Retorts process vessel and storage vessel with all control valves, pumps and piping including:
- ❑ SV level gauge
- ❑ Pressure Safety Valves (2)
- ❑ Ascroft Pressure Transmitter SV (0-100 psig range)
- ❑ LogTec Pressure Transmitter PV (0-60 psig)
- ❑ Strobe Light
- ❑ Rotor Proximity Switches (3)
- ❑ Endress & Hauser Analog Level Gauge PV with Sight Glass
- ❑ Minco Temperature Transmitters (2)
- ❑ Steam Pressure Alarm Switch
- ❑ ABB Kent Taylor Fullscope ER/C Chart Recorder with one box of charts
- ❑ MIG with Hub
- ❑ Temperature Gauge SV
- ❑ Pressure Gauge PV
- ❑ ES Mode Valves
- ❑ Analog Drain Valve

Retort Rigging Lift Hook (1per two retorts)
Documentation:
- ❑ Installation Validation Report
- ❑ Operation Manual
- ❑ Electrical Drawings
- ❑ Instruction Manual Chart Recorder

Software Licenses that were shipped with retorts that have the ICON-SE control system:
Host Computer:

- Microsoft 2000 Server 5.00.2195 SP2, key VRPQX-CMD48-WB74X-2YKWQ-MXHW8, License# 51876-OEM-0005045-20563
- Microsoft 2000 Professional BHY7Q-PDDTX-HJWW7-06CX9-KJMW8 (second label on PC???)
- RSView SE Client Rev 2.10.00 ser # 2524000449 9701VWSCWAENE
- RSView SE Server 100 Rev 2.00.01 ser# 2527000280 9701VWSS100AENE
- RSSQL Standard 5000 Rev 5.00.00 ser# 2562000121 9356STD2350
- RSMACC Ver 1.01.00 ser# 2418000104, 9515-MACCCD-10.16.02 (not installed)
- Microsoft Office 2000 SBE, lic#: 54188-OEM-1792691-89839 (no CD existing)
- Microsoft SQL Server 2000 Standard SP2 BHD87-9R9XR-97KFF-PTWVP-K7P3M

Retort 883

- Microsoft 2000 Professional, Version 5.00 2195 SP 3, key FC9FD-9DRGV-GX4X7-FJPD8-VRMQJ, License # 51837-OEM-0009955-23195
- RSView SE Client Rev 2.10.00 ser # 2524001131 , 9701VWSCWAENE
- RSView SE Server 25 Rev 2.00.01 ser# 2526000236, 9701VWSS025AENE
- RSSQL Professional 1500 Rev 5.00.00 ser# 1131000765,
- Microsoft Office XP 2000 SBE, DWMD4-4YYHR-BDRGJ-6J2WF-TCD2J
- Microsoft SQL Server 2000 Personal Edition, F7769-PCT2R-9MP4C-2HCWG-DQJBT
- Microsoft Internet Explorer, Version 6.0.2800.1106, SP 1

Retort 992

- Microsoft 2000 Profesional, Version 5.00 2195 SP 3, key MHM4D-HPJK2-KVXMB-HQQVY-8MYQG, License # 51837-OEM-0009955-23194
- RSView SE Client Rev 2.10.00 ser # 2524000448, 9701VWSCWAENE
- RSView SE Server 25 Rev 2.00.01 ser# 2526000235, 9701VWSS025AENE
- RSSQL Professional 1500 Rev 5.00.00 ser# 1131000766, 9356PRO2300
- Microsoft Office XP 2000 SBE, QT343-8H63D-CGMMQ-2VDR4-8KXF6
- Microsoft SQL Server 2000 Personal Edition, QXC83-XVKDY-KCPH3-K4YRF-FCX73
- Microsoft Internet Explorer, Version 6.0.2800.1106, SP 1

Retort 882 (PC#M930100184)

- Microsoft 2000 Professional, Version 5.00 2195, SP2, key THJRC-MPBJV-VWP4W-4PTJY-298JM**, License #**
- View SE Client Rev 3.00.01 ser # 2524002405 , cat#: 9701VWSCWAENE
- RSView SE Server 25 Rev 3.00.01 ser# 2526000889, cat#: 9701VWSS025AENE
- RSSQL Standard 1500 Rev 6.00.02 ser# 1126000556, cat#: 9356STD2300
- Microsoft Office XP SBE, VDPTM-7HF9H-WR64P-R7FHR-TVT63
- Microsoft SQL Server 2000 Personal Edition, SP-3a B4X86-JGK67-FTFQJ-VKRKG-DXMMT

Retort 993 (PC#M930100190)

- Microsoft 2000 Professional, Version 5.00 2195, SP2, key FYP96-KHDWT-HB8J9-MDBJX-Y2DJ, License # 51873-OEM-0011577-07407
- RSView SE Client Rev 3.00.01 ser # 2524002406, cat#: 9701VWSCWAENE
- RSView SE Server 25 Rev 3.00.01 ser# 2526000890, cat#: 9701VWSS025AENE
- RSSQL Standard 1500 Rev 6.00.02 ser# 1126000557, cat# 9356STD2300
- Microsoft Office XP SBE, GTGT6-VPQGC-77326-37FKW-DGX2M
- Microsoft SQL Server 2000 Personal Edition, SP-3a GHXDG=H74RV-JKJX4-9HTKH-QH6QY